THE

physical therapy

REVIEW

Volume 35 - Number 5 May 1955

Coordination of Services — PHENIX

Principles and Techniques of Physiotherapy in the Treatment of Spinal Paraplegia — BELL

Physical Therapy in Acute Infectious Polyneuritis — SCHUCH and FARMER

A Modified Double Amputee Crutch — KUPSKY and ANDREOSKY

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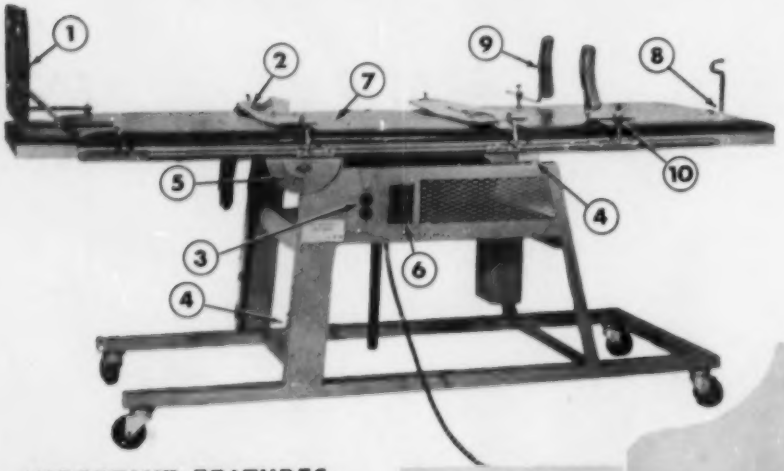

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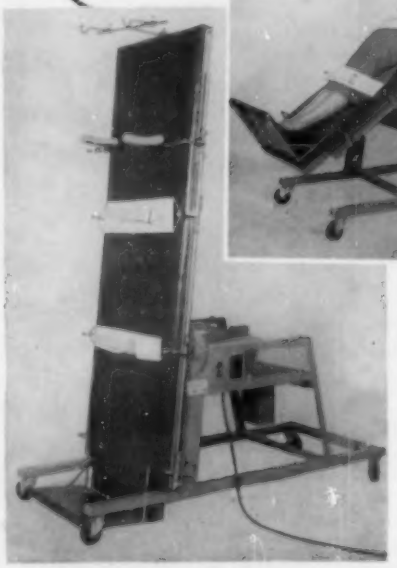

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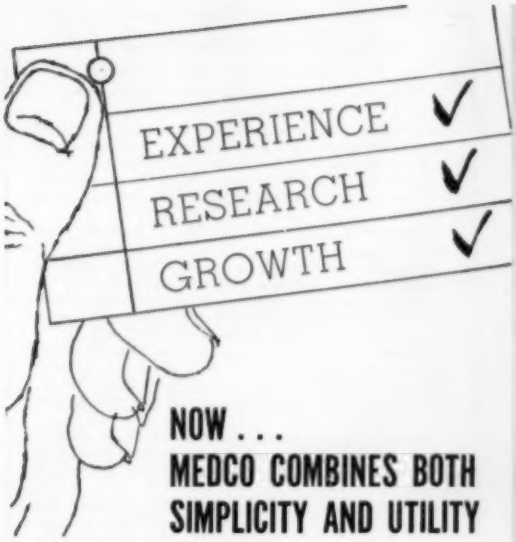

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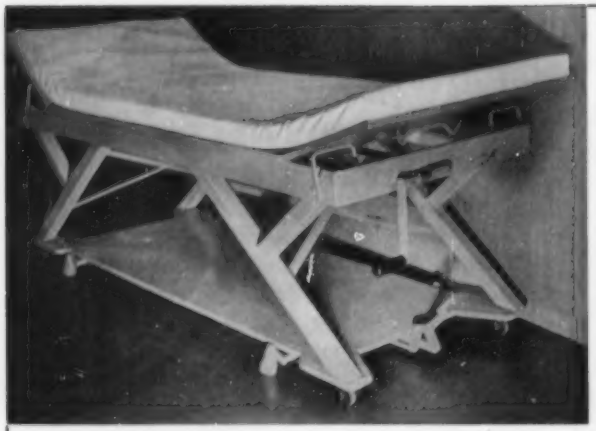

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The Physical Therapy Review

Official Publication of The American Physical Therapy Association

Vol. 35 May 1955 Number 5

*Coordination of Services**

Florence L. Phenix, B.S.

Any thoughtful consideration given to the development of more effective coordination of services and facilities reveals great variation in the basic concept of coordination as held by those in positions of administrative responsibility and professional leadership. This variation in basic concept is a serious deterrent to the accomplishment of real coordination of resources. Do we as individuals think of this mainly as a process of bringing into more effective relationship various segments of service provided within the physical therapy department or the department of physical medicine? Are we viewing it mainly as a process of working together more closely with other departments within the hospital? Are we predominantly concerned with the correlation of various institutional and non-institutional health services? Or, are we talking about the needs of people and ways we may more adequately meet these needs.

The report on the new federal legislation is indeed gratifying. The additional funds being made available to assist with some phases of the program for the rehabilitation of the handicapped will give needed assistance in this work where funds never seem sufficient to meet the demands for service. Of equally significant importance is what appears to be the strengthening of national leadership in coordinated planning in this work.

Associate Secretary, Health Division, Community Welfare Council of Milwaukee County.

* Presented at the Institute on Physical Therapy, sponsored by the American Hospital Association and the American Physical Therapy Association, Chicago, November 1954.

Recent Progress

This increased financial assistance and the strengthening of national leadership in coordinated planning for rehabilitation comes at a time when citizen interest in things of health nature seems to be at high level. There has been consistent increase in demand for health services of all kinds during the past several years. There has been increase in the number and scope of scientifically accurate articles released through popular magazines and the daily newspapers. There are radio and television programs giving the public authoritative information on health subjects. Many people have become personally identified with special group movements such as the Arthritis and Rheumatism Foundation, the National Foundation for Infantile Paralysis, and the Multiple Sclerosis Society. It is difficult to say what of all this is cause and what effect. This is of less importance than the fact of an increasingly interested and informed citizenry.

With the increase in demand for service has come a rapid expansion of facilities of all kinds. In the field of physical medicine and rehabilitation the increase has been phenomenal. Not only have there been more physical medicine and physical therapy departments established, but these departments are treating many more kinds of conditions than a few years ago were considered suitable for such service. Many hospital departments which previously served patients while they remained hospitalized, now extend their service to outpatients as well. Physical therapy services have been established in con-

nection with permanent and itinerant clinics, facilities for the education of handicapped children, and home care services variously administered. Physical therapy services are becoming more readily available to, and are being used by, physicians representing various branches of medicine.

INSTITUTIONAL TEAMWORK

Operating a modern health facility is a team work job. Effective service is dependent upon the reliable work a combination of people perform in a manner purposefully planned to give the best result to the patient.

Modern hospital facilities require the services of a wide variety of people in order to meet the needs of one patient. Approximately 2¼ workers are needed to provide service for each hospital bed. This means about 225 people to effectively operate a 100 bed hospital. Part of these are professional workers representing not one but a dozen or so disciplines. This is exclusive of physicians. If good service is to be provided, each of these 225 people — professional and others — must be reliable within his or her service area. Not only must each do his job well, but also must relate himself to others within the hospital in a manner which will produce the required results in efficient management of the physical plant and in good personal care to patients. Each is responsible for a given skill or service which must be performed reliably and must be related effectively to the rest of the hospital.

Within an institution there is a centralizing of administrative authority for the operation of the services provided. There is need for the exercise of much skill and ability to bring about the excellence of functioning and coordination of services which will produce a top ranking institution. The centralized administration carries an important part of the responsibility for producting excellence of results.

NONINSTITUTIONAL TEAMWORK

Services provided outside of a hospital or institution must operate on the same principle of responsibility and integrity of skilled personnel, relating themselves and the services they perform in such manner that ill or disabled people will be adequately served.

The varieties of services available for assistance of persons outside of an institutional setting are not under one centralized administrative authority. The efficiency of health services to persons outside an institution is dependent upon the skill with which several administrators are able to resolve differences of policy and method of each of the several autonomous agencies and, through the efforts of the members of their respective staffs, coordinate the services each offers individual patients or clients.

If the needs of people are to be of first concern to us, we are faced with the problem of bringing ever greater coordination not only among the agency services of noninstitutional nature, but also between hospital and other institutional facilities and those of agencies and organizations carrying the responsibility of service to patients outside the hospitals. When we take into consideration that the policies and methods of operation are different for each hospital or institution and for each noninstitutional agency it becomes apparent that the problem of working out relationships which will provide consistent service to individual patients or clients is not an easy or simple task.

THE CHALLENGE

We are confronted with an extremely challenging situation today as professional workers in a vital service field:

1. There is tremendous demand for services of a rehabilitative nature. There is evidence of this on every hand. This demand is in relation not only to the individuals who can be returned to their original degree of efficiency, but also to the tremendously large group of people with chronic or long term conditions of extreme severity, and to the senior citizen group. The work to be done with these latter two groups in prolonging their period of activity and extending their years of self-dependence needs much thought and planning.
2. More funds are being made available than ever before to support the services which contribute to the rehabilitation of human beings. This demands wise planning if these expenditures are to produce desirable results for patients.
3. The scope of rehabilitation, as this term is used today, is greatly broadened. It is inclusive of physical restoration, prevention of handicapping conditions, education, vocational counselling, training, and placement, sheltered work opportunities, convalescent hospital and nursing home facilities for the chronically ill and the aged,

and health services — nursing, physical therapy, and occupational therapy — for the chronically ill and the aged in their own homes.

CURRENT NEEDS

With all the expansion in public demand for health service there has been marked stepping up of the preparation of physical therapists and other essential workers. The increase in the educational output has not kept pace with the demand for personnel in any of the fields.

This present situation, in which we have keen public interest in health matters, increased financial assistance, and greater scope of rehabilitation service possibilities open to all workers in this field, must be met as of this date by workers available now. We do well to work on the problem of increasing the enrollment of young people in the schools of physical therapy and in schools established for the preparation of workers in allied fields. We are too apt, however, to hang our hopes on this future supply, instead of accepting the challenge to do something about today. People who need help are not going to wait until the class entering our schools at the opening of next term graduate. They are going to look for help wherever they can find it now. Sometimes what they find is effective and may result in the development of a new kind of worker; sometimes what happens is a bit tragic. In spite of our inability to place well prepared and experienced physical therapists in all positions open to them today, as professional leaders we do have a certain moral responsibility for planning for people represented by these services. Our professional community responsibility for the welfare of people is broader than our employee responsibility and much more complex.

If we are willing to accept the challenge which the need for service offers us, and if we are willing to assume the obligations of professional leadership on a community wide planning basis, then we will direct our thinking toward the *how* of meeting the present service needs with the present staff possibilities, while we are also directing our thinking and efforts toward the expansion of educational facilities to prepare greater numbers of workers for the years ahead. Where there is great need someone is going to try to work out a way to meet it. If the various professional disciplines in the field of rehabilitation do not accept the challenge, each in its own field, someone else will and the result may be less than satisfactory.

MEETING THE PROBLEM

The most promising approach to problems of providing for service needs today is that offered through the coordination of facilities and services — institutional and noninstitutional — now operating in our various communities. No one agency or institution is capable of meeting all the rehabilitation needs of a given human being. The most capable institution with the greatest number of services, given in highly skilled and efficient manner, fails the patient or client unless relationships with other community resources are established to help him attain his goal. Too often we, as professional people, are so involved with the goal set for our own particular segment of service that we mistake it for the patient goal.

The measure to the patient and to the community, of the value of any given service cannot be based solely on the patient gains at the time he has completed that particular segment of his care. The series of services which a person may require to get him from the point of illness or accident to the point of recovery constitutes a chain. The effectiveness of the results to the individual and to the community is determined by the quality of each link of the service chain, and the strength of the attachment of link to link.

Coordination is a process in which every worker has an active responsibility. It requires that there be an administrative framework within which professional personnel are given every opportunity to operate effectively. It establishes careful plans by which patients are referred smoothly from service to service, as best meets their individual needs. It requires, of individual professional workers, skill in relating themselves to each other and in planning jointly for the welfare of the patient.

IMPORTANCE OF ADMINISTRATION

Good administrative planning and decisions are based on knowledge and understanding. Administrative planning for physical therapy services must be based on knowledge of services provided, problems encountered, and desirable relationships of this service to other services required by the patient. Administrative understanding of physical therapy must come from the physical therapists themselves if reliable administrative decisions and planning are to result. There are many ways we each assume some part of the responsibility of developing this administrative understanding.

The direct approach is, of course, that of tabulation of figures: case load; turnover in patient load; kinds of patients served; kinds and number of treatment procedures used and given; length of the span of service to individual patients estimated in terms of maximum, minimum, and median; number of physicians using the service; comparative figures on monthly, quarterly or annual basis. This kind of information placed at administrative disposal is informative, impersonal, and essential to the operation of any department.

There is nothing which will take the place of the warm personal approach to the information you make available to the people who will help interpret and will give support to the rehabilitation service. The cold figures suddenly spring to life when interpreted in the light of the young man who was helpless with arthritis, who now is going back to school for further education and is still consistently gaining in joint range and in personal independence; or the older man with bilateral lower leg amputations who was despaired of ever learning to use his prostheses, but is now back at work on a part-time basis and gaining in ability and endurance.

The content and timing of reports to physicians is another important means of bringing about administrative understanding of service. These reports on progress noted and observations made, influence the physician's opinion of the value of the service to his patient. The manner in which medical prescription is sought is equally important. The value of a service which is evident to the physician in relation to the welfare of his patient will quickly be made known to administration.

Administration is always faced with the need to guard against overlapping in areas of responsibility and service. Methods must be continuously sought through which available service may be most effectively spread to patients needing it. Efficient operation within the given agency is essential, but desired results can be secured only when a series of efficiently operating services are effectively related.

Administrative coordination is concerned with interprofessional relationships both within a given agency, and on an interagency basis. The effective use of supportive services provided through various professional fields is important in obtaining desired patient goals. The establishment of policies and procedures which will guide in relating services on an interagency and an interprofessional basis is an important administrative responsibility.

Administrative responsibilities are not all vested in the administrative office. There are elements of administration carried by all workers. This is in some instances the responsibility for passing along information on which policies and procedures may be based. In other instances it may be a responsibility for formulating these policies. In all instances it obligates the professional person to be keen in observation, analytical, reliable in service and in judgment, and to use these skills and abilities to promote effective operation of the service of which he is a part.

The best administrative structure is in the last analysis dependent upon the ability of the professional workers to relate themselves to each other and plan jointly for the welfare of patients. Coordination of service through skilled interpersonal communication is not easy to accomplish. Probably interpersonal communication is an area in which we are least skilled—not only as physical therapists, but as professional workers, or as human beings. It is a skill we have assumed we possess and as a result have only begun to realize the extent of its lack.

Interprofessional Relations

Skill in interprofessional communication is based on security of the individual both personal and professional. Professional security implies good preparation. Our schools provide excellent scientific and technical background—the tools for the use of the physical therapist. Skill in the use of these tools comes with practice. Artistry comes only through hard work and broad experience, disappointments, and accomplishments. We grow into professional security with an awareness of our capacities and an acceptance of our limitations. If we possess real personal and professional security we will not be threatened by the ability and knowledge of our associates, but will be able to seek assistance from them which will benefit those patients we serve. Security in relation to our own professional counterparts is more easily attained than professional security in situations involving workers from other service fields, and must be established before we will be able to relate ourselves constructively to other professions.

To be skillful in interprofessional communication we must be informed about fields outside our own. There is much discussion today about the "team approach" to the care of patients. Too often this approach is more easily talked about than identified in actual practice. It is

an essential part of coordination of services. It implies the existence of mutual understanding by each professional worker of the contribution of the workers from each of the other professional fields. It involves basic respect for what each has to offer to the care of the patient. It requires an ability and the willingness to talk about professional matters in language common to people, rather than in terminology unfamiliar to other members of our multidiscipline group. It necessitates a willingness to constantly examine our own methods of work, to make sure they are intermeshing adequately with the other services provided to attain effective end results for the patient.

JOB ANALYSIS

Today, we are all confronted by the pressure of work. There is need for many more well prepared workers in order to bring the case load down to anywhere near the ratio of worker to patients that we estimate as desirable. This situation tempts us to spend all available energy in the effort to give more and more people less and less adequate treatment. At times we are aware that other problems the patient faces are factors influencing the attainment of less than adequate results. At other times we are simply irritated by the inadequacy of the job some other worker is doing. These are things which waste precious time for the patient, are frustrating and energy consuming for the workers, and become part of a treadmill situation into which we fall. This comes about because of our real concern for the welfare of our patient. Our concerns over the job close at hand must not blind us to the needs of our patient as a person. Is the work we are doing meeting the needs? Are there ways in which we may find help in our effort to meet patient needs?

How important is the treatment given to Mr. Jones in terms of the total picture of Mr. Jones and his worries, problems, and ultimate desires?

When we write off the case of Mr. Jones as having attained maximum improvement from the service we have to offer him, what happens to Mr. Jones as a person?

Has this maximum improvement been satisfactory to him?

If the answer is yes, has this excellent result been attained solely through good medical management, plus a superb physical therapy job? What has been the positive contribution of the patient himself? What part have other workers played in the end result?

If the answer is no, why? Too often we note the patient and family have been uncooperative, other workers have not given adequate attention to protective positions, or the case load is so heavy that the patient could not be given as much attention as he needed.

Why were Mr. Jones and his family uncooperative? What were their problems? What was done about bringing other workers in to help the Jones family work through some of their problems and worries which contributed to unsatisfactory results?

Why did the nurse on the ward let the patient get out of good position? What part did she play in the planning for Mr. Jones' care? What part did Mr. Jones himself have in plans? What did the nurse and the physical therapist know of each other, personally and professionally? What was the nature of their professional relationship and their respect for the professional status of each other? What was the extent of interdepartmental planning for the specific and peculiar needs of Mr. Jones as a person?

NEED FOR COORDINATION

Coordination through skillful interpersonal and interprofessional communication is time consuming. Not only is it time consuming, but also it is demanding of consistently clear thinking and planning. It cannot become an actuality unless individual workers themselves are convinced of the worth of a coordinated approach to patient care. We must be willing to experiment with planning methods. We must be willing to keep the kinds of records which will prove to ourselves and to others the worth of the job we are doing. Only in this way will we be able to evaluate results and draw reliable conclusions.

The very diversity of the services which go to make up the broad area of rehabilitation make work in this field exceptionally difficult to coordinate. The physical restoration services are in many ways a small segment of the whole process. Our services are a means to an end. The end or goal is a return to self-sufficiency, a return to the job, to home responsibilities, or to whatever is most important to the person involved.

Coordination must take place where the patient or client is. The entire coordinating effort of administration must focus on methods of accomplishing this coordination. The actual job of coordinating is in the hands of the direct service workers who personally serve the needs of the patients. They are effective or not according to

the degree to which this composite approach to the patient needs is accomplished.

There is no blueprint for this process which may be applied to all communities. If there were, the task of coordination would be fairly simple. It is a problem which all communities face. It touches the lives of increasing numbers of our population. It involves health, education, and employment in the broadest meaning of those terms. It is concerned with both preventive and corrective measures. It must take into account both those persons who are, or may reasonably become self-sufficient, and those persons who may be able to attain a lesser degree of dependence on others. It involves many agencies, both public and private. It involves the interests of individuals and organizations, both professional and social.

The way to tackle this problem is one with which many communities are struggling at this time. Many different methods are being tried. Community planning councils are being increasingly used as the community machinery to facilitate planning. Through these councils—known by slightly different names in different communities—interpersonal and interprofessional communication is facilitated, and divergent community interests and concerns are brought together for constructive joint planning efforts.

If we are willing to put our shoulders to the wheel and accept the challenge given us by the rehabilitation possibilities of today, we must be willing to look critically and constructively at the things we are doing in relation to the needs of people. We must be interested in our patients as people, and be willing to serve their interests through our own excellence of service effectively related to services available through other professions and agencies.

We must be willing to take leadership in effective coordination of services, not once or twice, but as a principle on which we will operate always; not critically, but as cooperators with others who know as much about the needs of people as do we.

In assuming leadership, we must do so with a desire to learn the viewpoint of other workers and professions in order that our own horizon and understanding may be broadened and enriched.

We must strive for increased skill in supplying information to people, in sharing with them the purposes, aims, and values of the profession we represent—always keeping in mind that when the ideas we think are important are not accepted by others, or when they meet with resistance, perhaps we need to reexamine, both the validity of the idea and our skill in communication.

We must be willing to coordinate our efforts with all who contribute to the rehabilitation process and accord these others their rightful place of importance in the result to the patient.

In these ways we will find opportunities for increased service to patients through the process of shared responsibilities, and through the extending of our short supply of service by the process of effectively relating it. In these ways we will find increasing satisfaction from the job we do and will occupy a stronger place of professional leadership in devising ways of providing services the people of our country need.

National Hospital Week May 8-14

Make sure that physical therapy has an opportunity to present its story throughout your area during National Hospital Week. Here's a checklist of recruitment procedures you'll want to start work on now.

School programs

Schedule talks on physical therapy at high school student assemblies. Use visual aids and distribute recruitment literature.

Show your sound film *Within Your Hands* to schools, PTA, civic, fraternal and church groups, youth clubs and health agencies.

Schedule career forums for high school junior and senior students.

Schedule panel discussions with physical therapists and students participating . . . followed by a "question and answer" period.

Open house

Plan an "open house" for your physical therapy department. Write to the principal and/or dean and counselor of the high schools in your area inviting them to attend and asking them to invite school students who might like to know more about career opportunities in physical therapy. Also invite parents and other interested secondary school faculty and students.

Let them see physical therapists at work and observe demonstrations and classes in session. Give them an opportunity to discuss with qualified persons the many and varied job opportunities for physical therapists.

*Principles and Techniques of Physiotherapy in the Treatment of Spinal Paraplegia**

Dora Therese Bell, M.C.S.P. (Great Britain)

Planned physiotherapy of patients suffering from spinal paraplegia, as a result of injury or disease, is a comparatively recent development in our profession. It was not until 1944, when Dr. L. Guttmann introduced a completely new conception of the treatment and rehabilitation of traumatic paraplegics at the Ministry of Pensions Hospital, Stoke Mandeville, near Aylesbury, that a fundamental change took place in the attitude of the physiotherapists in this and other countries towards these unfortunate sufferers, who in the past were generally considered as hopeless and helpless cripples—as a rule with only short duration of life. Today, thanks to this new teaching, the physiotherapist takes a very prominent part in the team-work concerned with the rehabilitation of paraplegics

The present paper sets out to survey the important principles, and to describe some technical details in the physical rehabilitation of spinal paraplegics as practised during the last 9½ years at the National Spinal Injuries Centre, Stoke Mandeville.

Physiotherapy in paraplegics is directed, from the start, to both the paralysed and normal parts of the body, and in no condition is the neglect, or even lack, of proper treatment more devastating than in spinal cord lesions.

Without proper and frequent change of position, as well as passive movements of the paralysed limbs, the grossest deformities may occur. Partly denervated muscles, or those which have recovered spontaneously, are quite useless if the joints which they control have been allowed to become so fixed that movement of the joint is no longer possible. On the other hand, without compensatory training and readjustment of the normal parts of the body to substitute for the lost function of the paralysed muscles, a paraplegic may lie in bed for the rest of his life or, at best, propped up with pillows in a spinal carriage or wheelchair.

Passive movements to all joints of the paralysed limbs are given as often as possible during the day to prevent the formation of contractures and also to promote a better circulation in the limbs, and the greatest care is taken to maintain the limbs in a proper position throughout the day, as well as night, particularly in the early stages. This is the responsibility of both the nursing and physiotherapy staffs, and in this connection it cannot be overstressed how important is a close co-operation between nursing and physiotherapy staffs throughout all stages of rehabilitation in paraplegics. In cauda equina lesions below L.4 special care is taken to see that deformities do not occur, due to the unopposed action of the iliopsoas, quadriceps and adductors of the legs. Contractures of the legs in adduction and flexion in hips and knees also occur frequently in cord lesions, when, in the initial flaccid stage of paralysis, the paralysed limbs are kept in adduction and semi-flexion by placing pillows under the knees. These contractures represent a serious complication in later stages, when the reflex function of the spinal cord returns, as they promote and increase spasticity. Amongst the various methods which have proved valuable in overcoming contractures and spasticity in the paralysed limbs, as well as in promoting better circulation, is a pedal-exerciser designed by Dr. Guttmann and called the 'Stoke Mandeville Bed Cycle,' which enables the paraplegic to carry out, in lying position, alternating passive movements of the paralysed legs by a cycling action with his arms. It is obvious that this apparatus also has an enormous training effect on the normal muscles of the body, especially arm and trunk muscles. Thus, this apparatus ideally combines the exercising of both the paralysed and the normal parts of the body.

This brings me to the second important principle in the physical rehabilitation of paraplegics: readjustment of normal parts of the body by compensatory training. According to Dr. Guttmann, compensatory training is directed to four main objects:

Physical Therapist at the Spinal Injuries Centre at Stoke Mandeville.

* Read at the First Congress of the World Confederation for Physical Therapy, London, September 1953: reprinted from Physiotherapy, Vol. 40, No. 3 (March 1954) journal of the Chartered Society of Physiotherapy.

1. *Overdevelopment of arms and trunk muscles in normal parts of the body.*

Special attention is given to those muscles which, by their attachment to the pelvis and sacrum, bridge the normal and the paralysed parts of the body.

The most important muscles to be exercised in spinal cord lesions above T.7 are the latissimus dorsi, trapezius, teres major, serratus anterior, pectorals and triceps, and for distal cord lesions also the abdominal muscles. The lattissimus dorsi, in particular, with its segmental supply as high as C.6, 7 and 8, by-passes the spinal lesion in any transection of the cord up to C.7, and thus connects the paralysed portion of the body with the remaining normal parts. While in normal circumstances the latissimus dorsi will adduct, retrovert and internally rotate the humerus, it will exert a pull on the pelvis in an upward direction if the shoulders are fixed by arm crutches or parallel bars, as then the mobilization part of this muscle is transferred to its insertion points on the thoracic-lumbar portion of the spine, the sacrum and the postero-lateral rim of the ileum. The exercise and overdevelopment of the shoulder muscles is started with the aid of chest-expanders in the ward while the patient is still laid up in bed. Later on it is continued in the physiotherapy department by weight-and-pulley exercises and exercises in the Guthrie Smith frame. With the upper trunk anchored, and the pelvis and lower limbs suspended in slings, the patient is first taught to swing the body from side to side, and then to swing and hold the position first to one side and then to the other. This is a very strong exercise for the latissimus dorsi and the other muscles of the shoulder girdle. As further progression he may even swing against spring resistance. Back extension in long sitting against spring resistance is another useful exercise. A wide sling is passed round the patient's body and each end is attached to springs, which are hooked on to the Guthrie Smith frame, the knees are strapped in extension and the feet held in dorsi-flexion against a footboard. In this position the patient practises back extension, forward flexion, trunk side bending and rotation.

2. *Restoration of postural sensibility and co-ordination mechanism.*

In complete lesions of the cord the loss of postural sensibility in the hip joints, amongst the other sensory disturbances of the paralysed parts of the body, makes a paraplegic unable to keep his balance. Therefore, a new postural sensibility guaranteeing postural control has to be developed. This is done by balancing exercises in front of a mirror with the patient, at first sitting over the side of his bed, later in a wheelchair, and eventually sitting on a plinth. He first learns to obtain a good sitting position while holding on to the bed or plinth with his hands; he then takes one hand away and moves it slowly sideways, forward and then above his head; later, he takes both arms forwards, sidewards and upwards. While doing these movements he looks into the mirror and, under visual guidance, corrects his posture, and in this way gradually develops a new postural control with the aid of the normal nerves innervating the latissimus dorsi and the other normal trunk muscles with attachment to the pelvis. Later, the patient will be able to dispense with the mirror and eventually be able to keep his balance with his eyes closed. To compensate for the different position of his arms, he has to move his trunk. When he takes his arm forwards he will lean his body slightly backwards, otherwise the centre of gravity would fall in front of his hip joints and he will lose his balance. In later stages he will be able to sit in an erect position. These balancing exercises are progressed by throwing first bean bags, then balls, by use of trunk side flexion and rotation exercises, and in some cases even boxing against a punch-ball.

3. *Readjustment of vasomotor control*

Complete lesions of the thoracic cord above T.5, in particular the cervical lesions, result in serious disturbance of blood circulation on change of posture. The explanation of this resulting postural hypotension of paraplegics with this type of cord lesion is to be found in the inability of the blood vessels in the viscera to constrict when the body is raised from the horizontal to the vertical position due to deprivation of control of the roots of the splanchnic nerves.

Dr. Guttmann and Dr. Jonason have carried out special research on this particular subject, which has been published elsewhere. It was found that this disturbance, which represents a serious obstacle to the physical rehabilitation of paraplegics, can be overcome by exercises which involve frequent change of postures, such as swinging in the Guthrie Smith frame and breathing exercises. Gradually readaptation of the motor control can be achieved to such an extent that these patients can keep the upright position, as can the able-bodied person, without fainting.

In the first stages of readjustment of vasomotor control in paraplegics, it is important that

the change of posture from the horizontal to the upright position is never done suddenly but gradually. In the beginning, adaptation to the upright position can be facilitated by the use of an abdominal binder or belt, which prevents blood from accumulating in the lower part of the trunk and legs. Care must be taken not to apply the binder too tightly, as this would prevent venous return.

4. *Restoration of walking capabilities*

When a patient has mastered the art of balance and sitting, he begins to learn to stand. To do this his knees are fixed in extension, either by plasters or light non-weight bearing calipers, and his feet are held in dorsi-flexion by toe-raising springs. Because he has no postural sensibility in his legs and hips he will have to rely at first on his eyes and the mirror to tell him where to place his feet. He first learns to stand and balance between parallel bars, putting into practice what he has learned in a sitting position. He learns to stand with his hips extended and the body thrown well back, and he must learn to take the weight on his legs and not on his hands. Then he commences walking exercises again in front of the mirror. Three types of walking are taught in the Centre—pelvis tilt walking and the swing-to and swing-through gait. Upward tilting of the pelvis is done by the action of both the latissimus dorsi and the abdominal muscles in the lower thoracic lesion, but in the lesions above T.6 entirely with the shoulder muscles, in particular the latissimus dorsi. Having freed his leg from the ground the paraplegic swings it forward by a slight rotation movement of the shoulder. Before starting to take actual steps forward he practises alternating trunk side flexion and learns to place his feet accurately forwards and backwards and to the side. He may walk with either a four-point or three-point gait. In a four-point gait he moves one crutch forward or, if he is between parallel bars, one hand along the bars and then the opposite leg. To do the three-point gait he moves the crutches forward, either together or one at a time, and then one leg, both crutches again and then the other leg. To swing-to or swing-through he moves both legs forwards together. In the swing-to gait both crutches are moved forwards and the legs are swung up to the crutches; in the swing-through gait the legs are swung in front of the crutches.

Sports, such as archery, wheel-chair netball, throwing the javelin, table-tennis and swimming are excellent balancing exercises, as well as having an enormous psychological value.

In 1948 Dr. Guttmann created a new sports movement for paraplegic sportsmen, and since then annual tournaments have been held for paraplegics at Stoke Mandeville Hospital. On July 25, 1952, the first international tournament for paraplegic sportsmen was held, and it is hoped that the Stoke Mandeville Games (as we call them) will become the Olympic Games for the Disabled.

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Belgian Association Holds International Meeting

"International Days of Kinesitherapy and Physiotherapy" will be held in Brussels, May 7, 8, and 9, 1955. The following countries will be represented: Belgium, Great Britain, Holland, France, Switzerland, Austria and Germany.

To commemorate the occasion, a special program will be published and distributed free to the professional associations of the participating countries. Members of the American Physical Therapy Association who are interested in receiving a program of the meetings have been invited to write to Mr. J. Nile, Secretary, Federation Nationale Belge Des Kinesistes, 94 Avenue D'Auderghem, Brussels 4, Belgium.

Coming Meetings

The 27th Annual Meeting of the American Society of X-Ray Technicians will be held at the Statler Hotel, Boston, Massachusetts, May 29 through June 2, 1955, with an Instructors Workshop on May 28.

Physical Therapy in Acute Infectious Polyneuritis

Charles P. Schuch, M.S., and Thomas W. Farmer, M.D.

Introduction

Infectious polyneuritis, or Guillain-Barrè syndrome, is a symptom-complex of unknown etiology. It has been variously described as acute polyneuritis with facial paralysis, febrile polyneuritis, and myeloradiculitis. The etiologic agent producing the clinical picture is, in most patients, unknown. While it affects adults and children, adults are more commonly afflicted. Infectious polyneuritis has been observed following a number of infectious diseases including infectious mononucleosis, diphtheria, hepatitis, measles, mumps, and chicken pox. In the vast majority of cases, however, the polyneuritis is preceded by a history of a cold or respiratory infection. After a latent period of a few days to several weeks neurologic symptoms and signs develop. Pain in the trunk and extremities is usually severe. This may be associated with numbness in the extremities and weakness of the legs and arms. This may occur initially in proximal muscles or may develop first in the hands and feet and then progress proximally. Motor weakness is symmetrical and frequently increases rapidly over a period of hours or days. In occasional patients the weakness may progress slowly over a period of as long as six weeks. Complete paralysis of the arms, legs, and trunk associated with severe respiratory paralysis may develop. The extremities are flaccid and the tendon reflexes disappear. Associated with the numbness and tingling in the extremities, varying degrees of sensory deficit are frequently found. Sensory loss to pinprick, light touch, position, and vibratory sense frequently occurs. This may be present only in the hands and feet or may extend upward to the trunk and produce a sensory involvement. In a minority of the patients no sensory findings are present. This symmetrical polyneuritis is associated frequently with cranial nerve involvement. Charactertistically, there is paralysis of the facial musculature bilaterally and occasionally other cranial nerves may be involved. Disturbance of the eye muscles, weakness of the masseters, weakness of the palate, dysarthria, and difficulty in swallowing may be present. In patients presenting severe symptoms tracheostomy and the use of the tank respirator are required.

Cerebrospinal fluid examination reveals a normal white blood cell count with an increase in the protein content, which varies from 70–1000 milligrams per hundred cc.

After the polyneuritis has progressed to its maximum extent over a period of a few days or several weeks, then gradual improvement in function begins. The recovery period may require from one month to two years. The mortality rate during the acute illness is approximately 15 per cent; also, approximately 15 per cent of patients will have residual neurologic deficit. The frequency and severity of residual neurologic disability is related in part to the adequacy of physical therapy and rehabilitation during the convalescent period.

During the acute illness the prompt and adequate use of the respirator and tracheostomy, when indicated, will lower the mortality rate in this disorder. Many forms of medical therapy during the acute phase of the illness have been suggested. Recently the administration of dimercaprol has been recommended by Van Hagen and Baker. The use of ACTH and cortisone has also been suggested by Joiner et al. However, the efficacy of these drugs has not been definitely established. Since the etiology of this condition remains obscure, no specific therapy is known.

Treatment

The experience gained at the North Carolina Memorial Hospital in treating patients with infectious polyneuritis would tend to indicate that the physical therapy regimen employed for this type of patient is similar in many ways to that given patients with poliomyelitis. The considerations of proper positioning in bed, hydrotherapy, a progressive exercise program, functional train-

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ing, and gait training are common elements in the treatment of each of these afflictions. In polyneuritis, however, there are a number of additional factors involved which may result in the physical therapy being more interesting, challenging, and gratifying to the physical therapist. The proprioceptive involvement tends to complicate the over-all picture and calls for additional treatment considerations by the physical therapist. The usual rapid rate of almost complete recovery of muscle strength and function tends to heighten the therapist's interest in the case, and to produce more gratifying results both for patient and therapist.

As a general rule the physical therapist is not consulted while the disease is still in the progressive stage, but as soon as it becomes evident that the patient's condition has reached a plateau, or is beginning to improve, the physical therapist may be requested to perform an evaluation of muscle strength and joint range of motion. Because of the patient's general condition and the motor and sensory involvements reviewed earlier, it seems advisable for the physical therapist to perform only a gross analysis * during the first one or two visits. A more detailed classification of muscle strength will be indicated at a later date. To prevent contractures and other postural deformities the physical therapist and nurse should strive to maintain the patient in the recommended anatomical positions, which include the soles of the feet resting against a footboard, the hips and knees in zero to ten degrees of flexion, the thighs in a neutral position of rotation, and the spine in straight alignment. If the upper extremities are severely involved they should be placed in various positions of support within the normal range of motion; however, if the patient experiences extreme discomfort certain deviations from the recommended positions may be permitted for brief intervals to help relieve the discomfort. The application of hot or cold packs several times daily and immediately before going to sleep are often very helpful in relieving pain.

In those cases in which the progressive stage of the disease advances so far as to necessitate the use of the respirator or other emergency measures, the physical therapist may be requested to perform a number of important duties. These duties may include a preliminary check of the respirator to be sure that the motor is functioning efficiently and that all parts including collar, porthole windows, and removable cot are all intact. He may help prepare the patient for the respirator by explaining to him how it will aid his breathing, how he will be placed in the respirator, the significance of the variations in pressure and speed of the respirator, and when to attempt inhalation and exhalation. Immediately after the patient is placed in the respirator the physical therapist should give further instructions by placing his hand through the porthole onto the thorax of the patient and by verbal and manual cues tell him when to inhale and exhale. The patient should be told to listen to the distinctive sounds of the respirator as it alternates pressure in order to breathe correctly with the machine. These instructive measures tend to relieve the patient's initial apprehension and thus help him derive maximal benefit from the use of the respirator. The patient should be discouraged from employing the accessory muscles of breathing, and he should be closely observed for the signs of hypoventilation (headache, pallor, semistupor) and hyperventilation (flushed face, dizziness, tingling of fingers and toes, carpopedal spasm). The respirator should be checked once again to be sure that the desired pressures and rates of respiration are being maintained. In the event of pharyngeal weakness, suction equipment should be available for immediate use and someone skilled in the operation of this equipment should be with the patient at all times. Weaning technics and additional care of the patient in the respirator should follow the same logical principles described by Austin, Dail et al., in reference to poliomyelitis patients.

As soon as the patient's condition warrants such action physical therapy may be started, consisting of passive motion to maintain joint range of motion and muscle reeducation to help overcome the severe paresis. Because the patient becomes fatigued easily at this early stage of the disease physical therapy is more beneficial when administered two or three times per day in 15 to 20 minute-periods. Except where there is serious respiratory involvement the patient generally is able to be transported to the physical therapy department within a week's time to receive treatment there. The exercise technics of passive motion and muscle reeducation may be carried on in conjunction with hydrotherapy procedures. Immersion in warm water in the Hubbard Tank affords the patient the opportunity to relax and experience relief from pain as well

* 1. to list limitations of joint range of motion
2. to list those muscles in spasm
3. to classify the strength of the muscles as follows; (a) "zero" — no evidence of contraction, (b) "non-functional" — evidence of contraction but not capable of lifting the part through the range of motion against gravity, and (c) "functional" — capable of lifting the part through the range of motion against gravity.

as facilitating the exercise procedures. If a therapeutic pool or Hubbard Tank is not available for use, other measures such as suspension apparatus or a powdered board may be employed to increase the strength of those muscles graded less than "Fair." Each of these types of apparatus may be arranged so that the patient may perform active motion in a horizontal plane with the hindering effects of gravity and friction reduced to a minimum. Substitute muscle action is undesirable and should be discouraged by the physical therapist. During this early convalescent stage the orthopedist may be consulted to determine the advisability of temporary splints. The more commonly recommended splints are the foot-drop splint in the case of marked weakness in the ankle dorsiflexors, the cock-up splint in the case of weak wrist extensors, and various types of finger and thumb supports where there is weakness of the finger extensors and opponens pollicis respectively. If, however, there is a rapid increase in strength of any of the aforementioned muscle groups, splinting may not be indicated. When available, the services of an occupational therapist may prove extremely valuable in improving the impaired hand function of the patient. The occupational therapist can offer many activities specifically designed to increase the strength and coordination of the hands and fingers.

As the patient experiences further improvement he will be able to participate in physical therapy for longer periods (2 daily periods of 30 to 60 minutes). The physician and physical therapist will arrange appropriate modifications and additions to the physical therapy program. Greater emphasis will be placed upon active and progressive resistance exercises in an effort to develop maximal strength. Frenkel's Exercises and other coordination exercises are very important in helping the patient overcome the effects of proprioceptive involvement. Exercises involving hand and foot placement, and coordinated activities of the hands with the eyes open and closed will frequently result in improved performance by the patient. Progressive mat activities play a significant role in the patient's general improvement, and the physical therapy program should include an adequate amount of time for such activities as rolling, sit-ups, hand-knee balance, crawling, knee balance, the use of short crutches, and other routines to help strengthen trunk and extremity muscles and improve balance preparatory to ambulation. During the convalescent stage of the disease the patient will have greater desire and ability to perform the functional activities necessary in daily living. The physical therapist can teach the patient the most efficient way to get from his bed into a wheel chair, how to get from the wheel chair to the mat; how to get onto a toilet seat and how to dress himself. The patient's progress in these functional activities can be continuously recorded with the use of any of the commonly employed charts of functional activity performance. In addition to the functional activity tests mentioned, tests of muscle strength and joint range of motion should be performed each week because of the usual rapid rate of recovery in patients with polyneuritis. If the patient suddenly has a resurgence of strength a muscle test should be recorded immediately; on the other hand, if there is a slow rate of recovery muscle tests may be performed less frequently.

In addition to the use of mat activities another excellent procedure preparatory to ambulation is the use of the tilt-table or standing-table. With the use of the tilt-table the patient may become more accustomed to the upright position and may receive further balance and position training in this upright position. When the physician and physical therapist feel he is ready the patient may attempt to stand in the parallel bars. In many cases patients find it easier to stand and take their first steps in a therapeutic pool or wading tank, and if such a facility is available it can be used prior to exercises in the regular parallel bars. The first attempts at standing and ambulation should be brief to prevent the patient from becoming weak or dizzy from overexertion. Among the activities to be performed in the parallel bars are standing balance; walking forward, sideward, and backward; foot placement; balance and position exercises with the eyes closed; and other specific hip, knee, and ankle exercises. When the patient has demonstrated adequate strength, endurance, and performance in the parallel bars he may progress to walking outside the bars with the aid of crutches or other orthopedic appliances if they are necessary. Because of the subnormal standing and walking balance resulting from proprioceptive involvement, and because of the symmetrical weakness, the most appropriate gait patterns are the alternate 4-point and the alternate 2-point patterns. These particular gait patterns afford an optimal combination of balance, speed, and efficiency for the patient. During this later convalescent stage of the disease the patient will participate in physical therapy periods of one to three hours. Since he will be

able to perform many of the activities unassisted, the physical therapist will not be required to devote as much individual attention to him as previously. The physical therapist can outline the program as prescribed by the physician and help set up the necessary exercise apparatus for the patient, but direct assistance and supervision are not always necessary.

When the patient is to be discharged from the hospital the physical therapist should prepare a written, detailed, all-inclusive home exercise program to be presented to the patient. The physical therapist and the patient should discuss all items of the home program including frequency and length of exercise periods, correct method of performing the exercises, number of repetitions, methods of progression, and all pertinent precautions. If the patient still has a significant amount of residual weakness it may be advisable for him to supplement his home program with several periods of treatment per week as an outpatient. In every case, the patient should return to the hospital for periodic examinations as determined by the physician. At this time a complete muscle test and functional activity performance test should be an integral part of the examination. A recommended procedure is one in which the physical therapist performs his analysis prior to the patient's appointment with the physician so that the latter may have the opportunity to review the latest findings as compared to the previous records. During this examination the physical therapist also should review the home exercise program with the patient to be assured that he is performing the exercises correctly. Appropriate modifications in and deletions from the program should be recommended at this time. If the medical and physical therapy examinations indicate such action advisable, the elimination of crutches or other aids to walking will be recommended.

CASE HISTORIES

The following are four case histories of patients treated at the North Carolina Memorial Hospital.

Patient 1.

This 27 year old, male farmer-dairyman was admitted to the North Carolina Memorial Hospital, May 1953. During the previous six months the patient had noted aching muscles and difficulty in walking on long hunting trips, but was otherwise well. Four and one-half weeks prior to admission to this hospital the patient developed fever, severe headaches, and chilly sensations. There was generalized aching of the muscles and a numb sensation in the fingers and toes. He noted enlarged cervical, axillary, and inguinal nodes. During a brief period of hospitalization at another hospital he developed weakness and numbness of the arms and legs. This was progressive over a period of four weeks.

Physical examination on admission to this hospital revealed slight difficulty in swallowing. There was marked symmetrical weakness and twitching of the muscles in the legs. The patient was unable to stand and had great difficulty in adjusting his position in bed. He had considerable pain in the feet and posterior thighs. Sensory examination revealed loss of position sense in the toes and marked decrease in vibratory sense at the ankles. Sensation to pinprick was absent in the fingers and toes. Tendon reflexes in the upper extremities were decreased. The knee and ankle jerks were absent bilaterally. The plantar response was flexor on the right and extensor on the left.

Abdominal reflexes were present and equal. The cerebrospinal fluid revealed an initial pressure of 280 mm. of water. The dynamics were normal. The fluid contained three white blood cells per cubic mm. and the cerebrospinal fluid protein was 38 milligrams per hundred cc.

The patient was treated with bedrest, injections of thiamine and Vitamin B-12. During the first week in the hospital the patient continued to develop progressive weakness of the arms, trunk, and legs. Subsequent cerebrospinal fluid examinations revealed a protein of 715 milligrams and 570 milligrams per hundred cc. After the second week in the hospital the patient's muscle strength began to improve. Improvement progressed rapidly during the following four-week period. At the time of discharge from the hospital, the strength in the arms and trunk was greatly improved. There was residual weakness in the distal portions of the legs. He was able to walk well on crutches and performed functional activities without the aid of braces. Reexamination six weeks later revealed the upper extremities to be normal and the muscles of the legs were in "good" classification. His endurance was subnormal. Reexamination after another five-week interval revealed good position and vibratory sense with continued muscular improvement in the legs. The patient was able to walk without support. Reexamination five months after his discharge revealed complete recovery.

Patient 2.

This 53 year old housewife first noted the onset of numbness and tingling in the fingers ten days prior to admission. During the following two days numbness and tingling progressed in the arms and developed in the legs. She also developed weakness in the arms and legs. She complained of dull, non-radiating back pain. Weakness in the legs progressed so that she was unable to support her weight.

Examination on admission to the hospital revealed moderate weakness of the left arm and severe weakness of the right arm. There was severe weakness in both lower extremities, but sensation was normal. There was complete absence of deep tendon reflexes in the arms and legs. During the first few days in the hospital the strength in the arms and legs began to improve. This improvement continued so that one month after onset she was able to walk well with crutches. At this time she was discharged from the hospital and followed subsequently in the Outpatient Department. Two months after the onset of the illness the patient had no residual neurologic signs and was completely recovered.

Patient 3.

This 32 year old farmer developed progressive weakness of the arms and legs ten days prior to admission to the hospital. One week prior to this he had noted an acute respiratory infection with nasal obstruction, headache, nausea, and vomiting. Weakness of the arms and legs rapidly progressed to complete paralysis.

Examination at the time of admission revealed flaccid paralysis of all the extremities. There was marked intercostal, abdominal and diaphragmatic weakness, and there was weakness in phonation and deglutition. There was diminished sensation to pinprick over the hands and feet. There was slight decrease in position and vibration sense in the feet, and tendon reflexes in the arms and legs were absent.

During a brief period of hospitalization the patient was given cock-up splints for the wrists and ankles. Slight improvement in muscle function at the hips and shoulders was noted at the time of discharge. One month after onset there was much improvement in muscle function of the shoulders and hips. Muscle function at the elbow and knee was graded "poor" to "trace" and the muscles at the wrists and ankles were in the "zero" classification. The strength of the trunk had increased and the patient was able to sit over the edge of the bed with a minimum of assistance. When the patient returned home he was given a program of home exercises supplemented by treatment administered by the local county health nurse and physical therapist. Six months after discharge from the hospital the patient was able to feed himself with the aid of a specially constructed glove. Seven months after discharge he was able to walk with the assistance of two people, but had not learned to use crutches. He had good range of motion in all joints. While the lower extremities were extremely weak, there was good power in the trunk, shoulders and elbows. Strength in the wrists and fingers was slight. The patient was continuing to improve slowly.

Patient 4.

This 53 year old female developed numbness and weakness in the legs two days prior to admission. At this time she noticed that she was unable to support her weight on her legs upon getting out of bed. Subsequently she noted numbness and weakness in the arms and hands. On the following day she was unable to move her legs and she noticed that she was unable to recognize warm water used to bathe her legs. Her arms were markedly weak. Examination at the time of admission revealed marked weakness in the arms and legs. Position sense, vibration sense, light touch, and pinprick were impaired in the legs while deep tendon reflexes were absent in both arms and legs.

Shortly after admission to the hospital the patient developed respiratory difficulty. She was placed on a rocking-bed, but was still in respiratory distress. A tracheostomy was done two days after admission. She was placed in a respirator and remained there for a period of one month. After this she was again placed on the rocking-bed for a period of three weeks which relieved her respiratory difficulty. Subsequently her tracheostomy was closed. At this time there was no muscle strength in the extremities and very little function of trunk musculature. Gradually she developed increased strength at the shoulders and elbows. With subsequent improvement arm muscles were rated at "good" to "fair." She learned to walk in water using parallel bars and learned to get from a bed to a wheel chair. The patient was discharged from the hospital six months after admission with marked residual paralysis. During subsequent follow-up examinations further slow improvement has been noted. She is now able to walk with slight support. Strength in the trunk and the muscles of the extremities continues to improve rapidly.

SUMMARY

Infectious polyneuritis is a symptom-complex of unknown etiology affecting both adults and children. Varying degrees of muscle paralysis and sensory disturbances are found in these patients with the motor weakness generally symmetrical. Occasionally the victims experience severe respiratory difficulty and require emergency measures such as a tracheostomy or the use of the respirator.

After the disease process reaches a plateau, and the patient begins to recover from the acute illness, a graduated program of physical therapy is begun. This physical therapy program is accelerated as the patient progresses, and the patient generally receives passive motion, active exercise, progressive resistance exercise, functional training, mat activities, and gait training. After discharge a thorough, well planned home program should be followed with periodical checkups at the hospital.

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Suggestions from the Field

A Modified Double Amputee Crutch

William J. Kupsky, B.S., and
Michael Andreosky, B.S.

The purpose of this paper is to present the design of a special crutch which has been successfully used with a patient who suffered a traumatic amputation of the right forearm and the right thigh.

This crutch enabled the patient to be fully ambulatory while his stumps were being conditioned for prosthetic fitting. This eliminated confinement to a wheel chair which might have resulted in the development of flexion contractures at the hip. Ambulation tended to maintain the patient's general condition and enabled him to walk wherever he chose. By utilizing the crutches he was able to go on weekend passes without a wheel chair. The crutches also proved to be of value while the patient received instruction in the use of his prosthesis.

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Figure 1. Lateral view showing padded platform and posterior support with bracket attachments. Upper arm and forearm cuffs are shown.

Figure 2. Complete view of patient standing with crutches.

The crutch is a modification of the triceps crutch and consists of a padded platform on which the forearm stump rests and a padded posterior heel-like support for the elbow. This platform is mounted on brackets which are attached to the uprights of a standard crutch and are of sufficient strength to maintain body weight. Padding of ¼" felt is glued to the plyboard

and an additional ¼" sponge rubber is glued on the felt. This same padding is also glued to the heel-like elbow support. An upper arm leather cuff is attached to the posterior upright of the crutch to encircle the upper arm, and another leather cuff is attached to the forearm platform to encircle and sleeve the stump. Thus, the arm and crutch can be moved simultaneously (figure 1).

With exact measurements, pressure on the axilla can be avoided and most of the weight borne on the elbow and forearm (figure 2). The patient reported no pressure points or feeling of discomfort over a three-month period of usage.

Grateful acknowledgement is made to Leo Mazur and Joseph Rovinski of the Maintenance and Repair Unit, Veterans Administration Hospital, Wilkes-Barre, Pennsylvania, who were instrumental in the construction of this particular type of crutch.

Rehabilitation Workshop

"The Team Concept in an Integrated Rehabilitation Program" is the theme for the Second Annual Field Workshop conducted jointly by the Institute For the Crippled and Disabled and Columbia University, May 30 through June 24, 1955.

Enrollment will be limited to 25 experienced or interested professional persons and graduate students whose specialties or disciplines are related to comprehensive rehabilitation.

The course will be given at the Institute, 400 First Avenue, New York City. Enrollment applications which reach the Institute by May 15, 1955, will be given priority.

The Field Workshop is supported in part by a grant from the Office of Vocational Rehabilitation, U. S. Department of Health, Education and Welfare. Participating for Columbia University are the Department of Guidance, Teachers College, and the Department of Physical Medicine and Rehabilitation, College of Physicians and Surgeons.

A fee of $100 to cover the costs of tuition and course materials will be charged. There are a limited number of stipends of $200 available for those whose attendance at the four-week course creates a financial hardship due to changes in residence.

A special feature will be the opportunity for enrollees to utilize their skills in the evaluation of actual cases currently in rehabilitation programs at the Institute.

Other phases of the Workshop are: seminars in rehabilitation philosophy and principles; participation in teamwork activities and discussions; observation of rehabilitation center activities; continuous case seminars conducted by the enrollees; participation of enrollees in the presentation of cases to the agency team; guest lecturers and discussion leaders; discussion groups on major problems in rehabilitation and visits to other rehabilitation facilities in the New York area.

Preference for enrollment will be given to applicants sponsored by recognized agencies. Professional teams will be especially welcomed.

Students who meet the entrance requirements of Teachers College may earn three graduate credits for satisfactory completion of the Workshop.

Course coordinators are Dr. Abraham Jacobs, Teachers' College, Dr. William M. Usdane, Vocational Rehabilitation Director at the Institute, and Dr. Robert C. Darling, Chairman of the Institute's Medical Board and head of the Department of Physical Medicine and Rehabilitation, Columbia-Presbyterian Medical Center.

A brochure describing the Workshop and giving enrollment information can be obtained by request to The Director, Institute for the Crippled and Disabled, New York 10, N. Y.

Abilities Unlimited

The National Association of Manufacturers, 2 East 48th Street, New York 17, New York has prepared for distribution a "Guide for Employers in Hiring the Physically Handicapped." It was written by members of leading industrial firms to meet a demand for a sharing of the whys and hows of this successful experience. It is for Personnel Directors, Vocational Counselors, Physical Therapists and others concerned with rehabilitation of the handicapped. Copies may be obtained for 50¢ each from National Association of Manufacturers. There is a 10 per cent discount on orders of ten or more copies.

Suggestions from the Field

Portable Immersion Tank for Home Use

Betty B. Gettys, 1st Lt., USAF (WMSC)

Frequently, in neuromuscular disabilities, hydrotherapy should be used in the patient's home. Too often this is impossible because such facilities are not available at a price within the means of the average patient. In the manufacture of a home made device the principle problem is the creating of a suitable system for proper turbulence of the water.

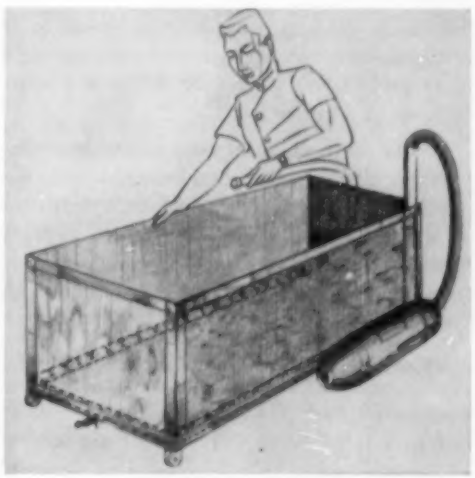
The following is a description of an immersion tank built by Mr. Joshua Treiman of San Antonio, Texas. Because the principles of construction are so simple and the utilization of a common household device so unique, this tank was considered for its practicality in home construction and use.

The tank is 2 feet high, 2 feet wide, and 4 feet long. Its capacity is approximately 110 gallons, and was constructed in about one week by Mr. Treiman at a cost of $60.00. Galvanized tin is used in construction of the tank. It is soldered at the corners and reinforced along the edges. Rollers, such as might be used on a hospital bed, are placed at the four corners of the tank. Ordinary water pipe of 1 inch diameter is laid along the inside border of three edges of the tank. Holes, ¼ inch in diameter and 1 inch apart, were drilled throughout the length of the horizontally laid pipe. One set of holes was drilled in the pipe, perpendicular to the base of the tank, and another was drilled at a 67½ degree angle to the base of the tank. This provides for a greater turbulence than one set of holes on top of the pipe. The pipe is connected at its open end at the top of the tub to a vacuum cleaner hose. The hose is connected to the blower end of the vacuum cleaner, which is equipped with an air volume regulator.

A water hose, connected to a spigot in the bathroom, is used to fill the tub and a hand thermometer determines the correct temperature of the water. If the tub is filled to approximately ¾ of its capacity, it can be drained by connecting a water hose to the spigot at the lower end of the tub and draining the water into a bath tub; but with less water in the tub, it must be drained into an outlet for this purpose, in the floor of the bathroom. The filled tub, utilizing the air from the vacuum cleaner, maintains a turbulence equal to, or superior to that of an ordinary whirlpool bath.

A hydraulic lift is used to suspend the patient in a sitting position in the water. The dimensions of the tank allow for a functional range of motion in the lower extremities. Full utilization of the tank is possible since the only displacement factor is the pipe. Due to the fact that the vacuum cleaner is used for turbulence, a much larger unit can be constructed using the pipe and vacuum principle.

This tank may be used for the same type treatments as a standard whirlpool, but it is believed to have advantages over an ordinary permanent whirlpool bath. Some of the advantages are as follows: (1) It is moveable and does not require permanent installation. (2) Displacement due to blower apparatus in the tub is practically nil. (3) There is more uniform turbulence, as air is blown from three edges of the tub. (4) There is a reduction of electrical hazards as the only electrical connection is to the vacuum cleaner, which is away from the tub. (5) It is less expensive.



Portable Tank for Home Use

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Editorials

As we pursue our daily tasks, concerned with familiar details and routines, we sometimes fail to see certain subtle alterations going on around us of importance to our profession. Many of these changes go unnoticed because they reflect the larger pattern of national trends and so we accept them without realizing that any change has occurred. It is often wise, therefore, to pause and review certain practices to determine not only what has come about but, more important, the value or harm inherent in the change.

One particular phase of our professional life which has gradually but distinctly evidenced some obvious modifications during the past few years has been the area of "professional appearance." Just as fashion has altered generally, so it has been reflected in the attire and appearance of the individual associated with the medical fields. Some of this change is undoubtedly good, mirroring a basic philosophy of functional attire scaled for a more efficient job performance, but some customs have become increasingly popular which not only fail to improve appearance but specifically detract from the accepted standards expected of professional workers.

It would be literally impossible to define the elements of what constitutes a correct uniform since there will always be certain individual preferences and local demands. It is possible, however, to assume that such things as excessive costume jewelry, high-heeled, dark shoes, sleeveless uniforms and neck kerchiefs do not usually belong with professional dress. Unfortunately, these, along with other items, have begun to appear on many persons in a variety of professions. Physical therapy is no exception and a critical view of the situation in your community may prove enlightening.

Perhaps our basic consideration here is to determine why a so-called "professional appearance" is important and in what ways its maintenance can contribute to the final, common objective. There is no easy answer to this for it lies in a somewhat abstract understanding of the responsibilities inherent in a profession.

One of the most patent reasons, and one with numerous facets, is the fact that our patients expect it. Contained in so simple a statement are a host of implications. In meeting this expectation each physical therapist increases not only the patient's confidence but adds specifically to the prestige of all concerned. By first setting and then meeting a recognizable standard, each of us testifies to the consumer that we stand for something real and definite. The very fact that tradition, good taste, and thoughtfulness exist is unconsciously projected first from the physical appearance of each person.

Our recognition of the importance of seeking a high level of performance is also reflected from our appearance. If we are proud of our accomplishments and of the place we hold in the field, then we will seek to portray what we are. We will, in the best sense of the word, "look the part," and to a large extent this includes not only what we wear but how we wear it. Carelessness in appearance can be only interpreted as a corresponding attitude in our standards of performance.

Association Activities

Virginia Stewart Richardson of Pittsburgh, Pennsylvania, passed away on March 10, 1955. Miss Richardson was Coordinator of Therapy at the Industrial Home for Crippled Children. She was a member of the Pennsylvania Chapter and had been a member of the American Physical Therapy Association ever since her graduation from Bouve-Boston School of Physical Therapy in 1943.

Marriages

Ann Bloor of Worcester, Mass. to David M. Gray, Brookline, Mass.

Judy Haverstock of Tallahassee, Fla. to A. J. Henry, Tallahassee.

Eleanor V. Hayes of Chevy Chase, Md. to Russell M. Brown, Chevy Chase.

Sydelle Rovner of Los Angeles, Calif. now Mrs. Sydelle R. Gerber, Los Angeles.

Chapter News

New York State

The New York State Chapter Education Committee is offering suggestions to its Districts in an endeavor to promote professional development of physical therapy in New York State. The project itself is specific; *The Plan* is not meant to be rigidly specific. Rather is it the outline of conditions considered satisfactory in setting up a scholarship. It suggests ways to set up such a scholarship in order to support the code of ethics and educational standards of the American Physical Therapy Association. Details are left to the persons and/or institutions who might consider the scholarship way mutually advantageous in meeting community physical therapy demands.

The Plan is a flexible one and may be used to stimulate the Districts to consider the scholarship method and/or other methods which they might find more desirable. For example, there are many communities with excellent hospitals which have no physical therapists at all. Promotional methods other than this *Physical Therapy Scholarship Plan* may be needed first.

MARY ELEANOR BROWN
Chairman, Educational Committee

Pennsylvania

The Western District is sponsoring an amputation seminar for physical therapists and allied professional members. The purpose of this Session which will be held May 13-15 is to achieve continuation in the treatment of the amputee. Millon Institute of Industrial Research will be the meeting place and instruction will include: psychologic problems: anatomy and surgery; kinesiology; selection, fabrication and fitting of a prosethesis; training of the amputee; and methods of "check-out" of a prosthesis.

South Dakota

Dear Miss Elson,

If you are like all of us you like to hear good news! And I have good news which I want to share with you.

This February two of our group went to the state capital, Pierre, to lobby for our bill to license Physical Therapists. Carol Spensley of Sioux Falls and Helen Buchanan of Huron. And I am very proud and happy to report that the bill has passed with only one amendment which in itself is not detrimental.

All over the state the physical therapists wrote and urged friends to send in telegrams to their legislators urging passage of the bill. We talked to former and present patients, friends, and people of consequence in the community in our efforts to rally support. No, it wasn't an easy job for we had naturopaths and reflexologists bucking the bill.

Without the support of the South Dakota Medical Association both financially and actively participating, the Huron Clinic which paid all of Helen's expenses while she was engaged in lobbying, we could not have achieved this legislation. In many ways one might say that in a thinly populated state the legislation would be easier—here we have about 600,000 and there are 13 active PTs. I would argue the opposite since with such a small group of physical therapists the job was spread very thinly. Our treasury at the time we began legislation was $70. Now after this hectic time our treasury is *only* $9.28 lighter!

Perhaps other states have become discouraged in their efforts to obtain licensing. I write this

letter partly because I am so proud of the efforts of all of the physical therapists in the state and to encourage others to keep on trying.

Very sincerely,

LOIS SAXTON, *President*

Virginia

Dear Physical Therapist:

Recently I received from National Headquarters a list of names of physical therapists who were not members of the American Physical Therapy Association. As chairman of the Membership Committee I am writing to every physical therapist to encourage membership in the American Physical Therapy Association.

We should now and then pause to examine our attitude towards our organization. Today more than 6,000 physical therapists consider it their professional responsibility to belong to the Association which is the only one that speaks for the profession. Due to the great efforts of the past and present members, our organization has increased its prestige and consequently we are able to say—"we have a profession." This is very evident from the annual reports given to the members by the chairmen of the various committees and National Office staff. There are now 58 chapters of the APTA directly responsible to our Headquarters. Through the voice of the Chapter, each member's attitude, desires, and recommendations are sent to the National Office, and it in turn transmits this information to employers and to the public in general.

To help you realize how greatly you have benefited by the increasing improvements which have contributed to the continuation of a successful professional growth, will you kindly pause and read slowly the following items:

salary scale	plant improvement
personnel policies	recruitment
standard of education	state legislation
civil service status	interstate prestige
military status	professional growth

The remarkable change during the last ten years is quite obvious and is greatly due to the efforts of each member and the loyalty of the group. May I ask you to consider seriously the role each physical therapist has in upholding the ideals of the Profession by *Active Membership.*

Sincerely yours,

SISTER ADRIENNE
Chairman, Membership Committee

New Student Members

Bouve-Boston

Donna Cook — Robin Mitchell
Janet Landis — Judith Tite

Columbia University

David Bailey — M. Joyce Matthews
Joan Baldasare — Marvin Moss
Patricia Faulkes — Mary Lou Sparklin
Amos Gunsberg — Kim Timberlake
Madeline Zadigan

Mayo Clinic

Frances Abel — Shirleyann Franks
Dorothy Bisque — Jean L. Lamb

New York University

Fred A. Baughman, Jr. — Stanley Rega
Harvey Schirmacher

Simmons College

Jewel Austin — Maureen Davidson
Nancy Cameron — Polly Hatheway
Beverly Chaffee — Anne Kirkpatrick
Patricia Church — E. Suzanne Mills
Sonia Parker

University of Pennsylvania

Carlton E. Benesch — Prudence Kamens
Donald Cochran — Mario Mancusi
Jean Davis — Rocco Ortenzio
Richard F. Erkus — Michael Roman
Bettye Hopson — Edward Shelmerdine
Harold Welner

University of Wisconsin

Dorothy Tegtmeyer

Captain Glidden Receives Commission in Regular Army

Two women officers at Brooke Army Hospital received commissions in the Regular Army in a ceremony at Brooke Army Medical Center.

Capt. Dorothy I. Glidden, a physical therapist who in July will complete her tenth year of active duty with the Army, and Lt. Lucille M. Light, on active duty as a member of the Army Nurse Corps Reserve who will complete her training as a nurse anesthetist this spring, took the oath of office in ceremonies attended by Brigadier General Stuart G. Smith, hospital commander.

Captain Glidden, a graduate of Mid-West Teachers College, Bemidji, Minn., was trained by the Army as a physical therapist. She served on Guam in 1948 and 1949 and came to Brooke Hospital as a staff therapist in 1953 from Fitzsimons Army Hospital in Denver.

Captain Glidden has been a member of the American Physical Therapy Association since 1945.

Vaccine Validated—You Were There

In addition to dimes and dollars that physical therapists have contributed to the March of Dimes, and far beyond the hours they have worked in treating poliomyelitis patients, they have had the honor to be working members of the teams that assisted in obtaining data necessary for the evaluation of the effectiveness of the Salk Vaccine as reported on April 12, by Dr. Thomas Francis, Jr. at the University of Michigan.

Three members of the National Office staff in the Department of Professional Services were present in Ann Arbor when the historical report was given. Within minutes from the 10:20 a.m. time given for the anticipated report—the newspapers, the radio, and television were carrying the message around the world. Dr. Francis had found in the 1954 study that:

". . . vaccination was 80-90 per cent effective against paralytic poliomyelitis: That it was 60-70 per cent effective against disease caused by Type I Virus and 90 per cent or more effective against that of Types II and III Virus."

Other speakers on the program included Dr. Jonas Salk, the creator of the polio vaccine; Dr. Harlan Hatcher, President of the University of Michigan; Dr. David Bodian of the Johns Hopkins University; Dr. Thomas Rivers and Dr. Alan Gregg of the Rockefeller Foundation; Dr. William Workman of the United States Public Health Service; Dr. Hart Van Riper and Mr. Basil O'Connor of the National Foundation for Infantile Paralysis. This representative group exemplified the success which a coordinated effort of research scientists and professional personnel—with the generous support of the publicly endowed foundations—can achieve in forging on to the eventual conquering of a devasting disease.

The impressive activities of the day brought vivid memories of the rapid succession of events in recent years in which physical therapists have been called upon to perform certain procedures as a part of special studies or planned projects which had great implications.

In 1951, the American Physical Therapy Association was asked to arrange for the services of a physical therapist who could be available to carry on a muscle testing program, as part of a pilot study in the use of Gamma Globulin as a prophylactic agent in poliomyelitis, under the direction of Dr. William Hammon of the University of Pittsburgh. Miriam Jacobs was loaned by the D. T. Watson School of Physiatrics for the field study which was conducted in Provo, Utah.

In 1952, Dr. Hammon's study was extended and Carmella Gonnella of Texas and Georgianna Harmon of California joined Miss Jacobs as members of the follow up teams in study areas about Houston, Texas and Sioux City, Iowa. The report of their activities appeared in the July 1953 issue of the *Physical Therapy Review*.

In 1953, the Communicable Disease Center of the Public Health Service conducted a National Program for the Evaluation of Gamma Globulin in Poliomyelitis and requested the assistance of the American Physical Therapy Association in locating physical therapists who could take part in the field studies. To assure the highest degree of uniformity in muscle testing procedures, an abridged muscle grading system with a working manual and muscle examination form were developed by Dr. Jessie Wright and her staff at the D. T. Watson School of Physiatrics. Thirty-eight physical therapists selected for the program attended a four-day orientation session for specific instruction in the abridged muscle grading system given by the staff at the D. T. Watson School of Physiatrics. A report of the study in the variability between examiners in muscle evaluations appeared in the June 1954 issue of the *Physical Therapy Review*. These thirty-eight physical therapists participated in the 1953 studies carried on in thirty-five states and the District of Columbia.

In 1954, the National Foundation for Infantile Paralysis requested the assistance of the American Physical Therapy Association in the selection, orientation, and coordination of the performance of physical therapists who would be needed in the evaluation of the poliomyelitis vaccine field trial, conducted by Dr. Thomas Francis at the Poliomyelitis Evaluation Center in Ann Arbor, Michigan. Many of the physical therapists who assisted in 1953 were available for service again in 1954, but more were needed to cover the many study areas. An additional thirty-five physical therapists were selected from local areas and attended an orientation session of one week at the D. T. Watson School of Physiatrics to become familiar with the abridged muscle grading system. All physical therapists who received this orientation were ready to carry out muscle tests on referred patients at the completion of the poliomyelitis vaccination clinics.

(Continued on page 280)

Union Station and Aloe Plaza — Carl Milles's Fountain

Infant Baedeker

Comin'? If you cross the Mississippi entering St. Louis, here's a puzzle to solve—why is the mighty river clear on the Illinois side and roiled on the Missouri side? The answer will be easy if you've chosen railroad transportation to the 32nd Conference of the APTA! As you leave the railroad terminal for headquarters, take a long look at Carl Milles's beautiful fountain.

Have you selected your transport? It's really not too early to make reservations, is it? Will this be your first visit to St. Louis? Wondering what to pack?

Arrival Assists

Plane: whatever your air line, you'll land at Lambert - St. Louis Municipal Airport, northwest of conference headquarters. Airline Transit service direct to Hotel Jefferson is available at nominal cost. Travel time: approximately 55 minutes.

Train: whatever your railroad, you'll diesel *backward* into Union Station, six blocks west of headquarters. Red caps and taxis will be waiting to assist you.

Bus: whatever your service, the bus terminal will be on Broadway, seven blocks east of headquarters.

Auto: Hotel Jefferson fronts on 12th Boulevard (City Route 66) which runs north and south, paralleling the Mississippi. The official Missouri highway map, available from your chapter secretary or district chairman, should guide you to conference headquarters with minimal difficulty.

Caution: a safety campaign is on in St. Louis. Speed limits and parking regulations are strictly enforced. Unless otherwise indicated, the speed limit on St. Louis streets is 30 miles per hour.

Packing Points

Hotel Jefferson is totally air-conditioned so all rooms and meeting places will be comfortable. Air conditioning is the rule for shopping facilities, dining places, supper clubs, and other entertainment spots. Cool cottons are advised for daytime and nights outdoors, but pack a wrap for theatre under the stars or moonlight cruises. Informal dress is now customary at the Muny Opera.

Physical Therapy Departments to Visit *

Illinois Medical Facilities

Scott Field, USAF Hospital—Belleville—20 miles
Alton Memorial Hospital—Alton—25 miles
St. Mary's Hospital—East St. Louis—just across the river.

Free-Time Entertainment †

Fairmount Park Raceway—Collinsville, Illinois. Bus direct from Eads Bridge—8 miles. Missourians must go to Illinois to pick and watch a winner.

Busch Stadium—home of the St. Louis Cardinals

Schedule: June 19, Brooklyn (day game); June 20 through 23, Philadelphia (nightly); June 24 and 25, New York (night games).

Nite-Spots

DeBaliviere "Strip"—intimate atmospheres and your choice of musical background
Boulevard Room—Hotel Jefferson
Steeplechase—Hotel Chase
Starlight Roof—Hotel Chase
Merry-Go-Round—Park Plaza Hotel
Black Forest Gardens—on "The Gravois"—this is the chance to practice your schottische and polka.

This city is recommended to the reader of this guidebook as an interesting and entertaining place, suitable for serious activities, but noted for its informality and hospitality.

* Refer to April *Review*
† Consult the February *Review*

Group Meetings of Physical Therapists

Official Crippled Children's Program

Time: Monday morning, June 20th
10:00 a.m. to 12 noon
The Jefferson, Room 7

Program: The Kentucky Crippled Children's Commission Program by Miss Irene Schaper, Supervising Physical Therapist
The Indiana Division of Service for Crippled Children Program by Miss Mary Ferguson

Chairman, 1955 Meeting:
Mary Eleanor Stout
Physical Therapy Consultant
Georgia Department of Public Health

Societies for Crippled Children

Physical Therapists employed in societies for crippled children are invited to meet with Louise Bailey, Physical Therapy Consultant, National Society for Crippled Children and Adults, Inc., Monday, June 20.

Suggestions for discussion may be sent to Miss Bailey at 11 South LaSalle Street, Chicago 3, Illinois.

Meeting of Self-Employed Members

Members who are self-employed either full time or part time will not want to miss the Conference meeting on Monday morning, June 20th at the Jefferson, St. Louis. At this time plans for further organization will be discussed and a report given by Edward A. Snapp, Jr. of Houston, Texas.

New Arthritis Group at Conference

The Arthritis and Rheumatism Foundation is sponsoring an Arthritis group meeting for the first time at the Conference in St. Louis. All APTA members working in connection with the Foundation's home care or rehabilitation programs or who work primarily with arthritis patients are invited to attend on Monday morning June 20th.

Get together with your fellow workers to discuss your problems and exchange experiences and ideas. For further information and to help in planning, please contact Emily E. Mueller, Eastern Pennslyvania Chapter, Arthritis and Rheumatism Foundation, John Bartram Hotel, Broad and Locust Streets, Philadelphia 7, Pa.

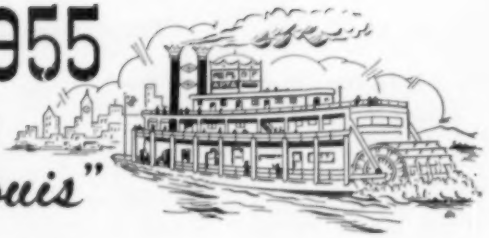
VA Physical Therapists

All members who are employed by the Veterans Administration are invited to meet together with Mrs. Florence Linduff during the Saint Louis Conference on Monday morning, June 20th in the Jefferson.

CONFERENCE 1955

JUNE 19th to 25th

"Meet me in St. Louis"



Jefferson Hotel

Business Meetings and Program Schedule

June 17th and 18th	Board of Directors Meetings
June 19th	
9:00 a.m. to 5:00 p.m.	**School Section**
5:00 p.m. to 8:00 p.m.	The Blue Note Mixer — Eastern Missouri Chapter, Host
June 20th	
9:00 a.m. to 12:00 noon	Registration
10:00 a.m. to 12:00 noon	Group Meetings — Veterans Administration, Official Crippled Children's Programs, Crippled Children's Societies, Self-Employed, Arthritis and Rheumatism Foundation, State Examining Committees
2:00 p.m. to 5:00 p.m.	Opening Session — Greetings, President's Address Speaker, Charles C. Letourneau, M.D., Director, Program in Hospital Administration, Northwestern University
7:00 p.m.	A Night at the Opera — St. Louis Municipal — Outdoor "Wonderful Town"
June 21st	
9:00 a.m. to 12:00 noon	House of Delegates
2:00 p.m. to 5:00 p.m.	**Introduction to Workshop Technics** **Leader** — Earnest Brandenburg, Ph.D., Acting Dean, University College, Washington University **The Workshop Philosophy,** Rev. R. A. Johnston, S. J. Director, Department of Speech, St. Louis University **The Dynamics of Groups** — Nathan Kohn, Jr., Ed. D., Director, Nathan Kohn Jr. and Associates **Listening and Understanding,** Earnest Brandenburg, Ph.D. **What are the Characteristics of Success Workshops?** Ten group discussions. **Suggestions and Comments on Workshop Technics** — Summary, Robert Haakenson, Ph.D., Assistant Professor of Speech, University of Missouri
June 22nd	
9:00 a.m. to 12:00 noon	**Scientific Workshops** Tests Measurements and Evaluation Procedures in Physical Therapy Physical Therapy in Orthopedics Treatment Procedures in Physical Therapy Elements of Administrative Responsibility and Communication Physical Therapy within the Framework of Community Agencies Interpretation of the Profession and Educational Opportunities
2:00 p.m. to 5:00 p.m.	House of Delegates
6:00 p.m. to 7:30 p.m.	Reception of National Officers
7:30 p.m.	Annual Banquet
June 23rd	
9:00 a.m. to 12:00 noon	**Scientific Workshops Continued**
2:00 p.m. to 5:00 p.m.	**Research Section** **Chapter Workshop**
7:00 p.m. to 10:00 p.m.	Scientific Movies

June 24th

9:00 a.m. to 12.00 noon	**Scientific Workshops Concluded**
2:00 p.m. to 5:00 p.m.	**Chapter Workshop** Visits to local Physical Therapy Departments

A recess will be scheduled each morning and afternoon to visit exhibits.

Do It Yourself in '55

Now you have selected the scientific workshop of your choice during the St. Louis Conference; you have registered in advance on the card sent with your dues bill; you are prepared to have your questions answered by the group solution method; and you must be ready to participate in solving others' problems. Tuesday afternoon will give you the key to how this works. As a physical therapist you have your professional knowledge to bring to the workshop, but some preconference research about workshop technics will give you added assurance as a participant. Dean Brandenburg of Washington University who is serving as our workshop coordinator has some suggestions.

"Good discussion rarely occurs by accident. It results only from careful planning and preparation."

"Good Discussion Demands a Good Subject

1. Of value and interest to the group.
2. On a controversial issue.
3. Capable of being handled in the time available.
4. Stated impartially as a question."

"Participants Must

1. Through preparation or background have more than superficial knowledge of the subject. (A 'pooling of ignorance' is not the aim.)
2. Appreciate the good of discussion to find the best possible common answer to the problem. (Discussion is not a debate, nor an opportunity for someone to win an argument. It is a cooperative search for the best possible group opinion.)
3. Be willing (even eager) to participate, but not inclined to dominate the discussion."

Countless pamphlets and books might well be included in a suggested bibliography to cover the subjects of workshops, group discussion procedures, and conference technics. A trip to the nearest library, or to a university book store, is certain to produce a number of good sources. Delving into some of the following, for example, should prove both interesting and rewarding:

Adult Leadership, a monthly magazine published by the Adult Education Association, 743 North Wabash Avenue, Chicago 11, Illinois. The June 1952, March 1953, and June 1953 issues have especially good sections devoted to discussion leadership.

Braden and Brandenburg, *Oral Decision-Making*, New York, Harper and Brothers, 1955. Chapters 2, 3, 10, 11, 12, and 15 are particularly recommended.

Haiman, *Group Leadership and Democratic Action*, New York, Houghton Mifflin Co., 1951.

Journal of Social Issues, Vol. 4, No. 2, Spring 1948, "The Dynamics of the Discussion Group," by Bradford and French.

Kelley, *The Workshop Way of Learning*, New York, Harper and Bros., 1951.

Lasker, *Democracy Through Discussion*, New York, H. W. Wilson Co., 1949.

McBurney and Hance, *Discussion in Human Affairs*, New York, Harper and Bros., 1950.

Strauss and Strauss, *New Ways to Better Meetings*, New York, Viking Press, 1951.

Utterback, *Group Thinking and Conference Leadership*, New York, Rinehart and Co., 1950.

Wagner and Arnold, *Handbook of Group Discussion*, New York, Houghton Mifflin Co., 1950.

The list of leaders for each group will be published in the June *Review*. They are all members of the Association who are outstanding physical therapists and look forward to working with all of you.

Facts About the Conference

Hotel

The Jefferson Hotel is entirely air-conditioned and is the largest hotel in St. Louis. It adjoins the retail shopping and theater districts.

Rates

Are from $6.00 for a single room and bath. Rooms with double bed and bath for two start at $9.00. Twin-bedded rooms with bath for two start at $11.00. Suites start at $25.00.

Conference Speaker

Robert Haakenson, Ph.D.

The summary of the Conference meeting on the Introduction to Workshop Technics will be given by Robert Haakenson, Ph.D. Dr. Haakenson is Assistant Professor of Speech at the University of Missouri and received his doctorate from the State University of Iowa in 1952. He is the producer of educational television programs on station KOMU. From 1948 to 1954 he was Assistant Professor of Speech at Temple University. His articles on broadcasting and television speechmaking have been published in *Today's Speech*. He is a member of the Speech Association of America and the American Association of University Professors.

Hotel Reservations

Reservations are made directly with the hotel. Reservation cards will be sent out with the dues notices. Those who wish to room together should send in only one reservation including names of all roommates. The number of minimum priced rooms is limited and the hotel will acknowledge reservations within a range dependent upon availability at the time of arrival. When single rooms are filled the hotel will assign roommates.

Registration

Active and Inactive Members	$5.00
Student Members	1.00
Other Physical Therapy Students	2.00

Advance registration cards will be sent to members with the dues notices. If you do not register in advance you *must* present your membership card when you register.

Physical therapists who are graduates of approved schools but not members of the Association may attend the general sessions on introduction by a member and paying a registration fee of $15.00.

Workshops

Scientific workshops are part of the program. Refer to the description elsewhere of their content. Members may attend only one workshop of three sessions and must register in advance for the one of his choice on the card provided.

Exhibits

The Exhibit Manager is Gordon M. Marshall, 30 W. Washington, Chicago 2, Illinois. Scientific exhibit space is assigned by the American Physical Therapy Association.

Opera

A block of seats has been reserved at the Outdoor Municipal Opera for Monday night, June 20. Members will order their tickets directly by using the order form from the April or May issue of the *Physical Therapy Review* (In this issue see page 224).

Motion Pictures

Time has been set aside for showing motion pictures and slides which would be of interest to physical therapists. If any members or organizations wish to present movies, filmstrips or slides, application blanks may be obtained from the American Physical Therapy Association, 1790 Broadway, New York 19, New York. Since the time limit will not permit all movies to be shown, application for inclusion in the program should be made early.

The Program Committee will select those films and slides which in their judgment will be of greatest interest to the audience and which will fit into the time allotted. Only films and slides thus selected will be shown.

Research and Clinical Studies Section

Abstracts of papers to be read at the 32nd annual meeting of the American Physical Therapy Association which meets in St. Louis, Missouri, June 19-25, must be sent to the National Office, 1790 Broadway, New York 19, N. Y.

Abstracts should be not more than 250 words long, or one typewritten page, double-spaced. Abstracts should be sent in triplicate to expedite review by the Research and Clinical Studies Committee.

Abstracts should have a concise but inclusive title. Other information required is the full name of the author or authors, degrees held, position, and the institution where the work was done.

Completed papers are due in the National Office by May 15.

Student Section

Greetings to all student readers. May I again remind you as Marion Kroupa has done previously, this is *your* section, and it is you who will make it worthwhile and interesting. Have you any stimulating news? Contact either your regional student board editor or me, and we'll see that your articles are printed. Let us hear from you; many schools have not yet been represented in this section, most others have appeared only once. Ours is the loss if we neglect to make use of these pages. So let's dust off the typewriters and share our experiences—the part can benefit the whole!

BEVERLY A. KINDIG
Editor, Student Section

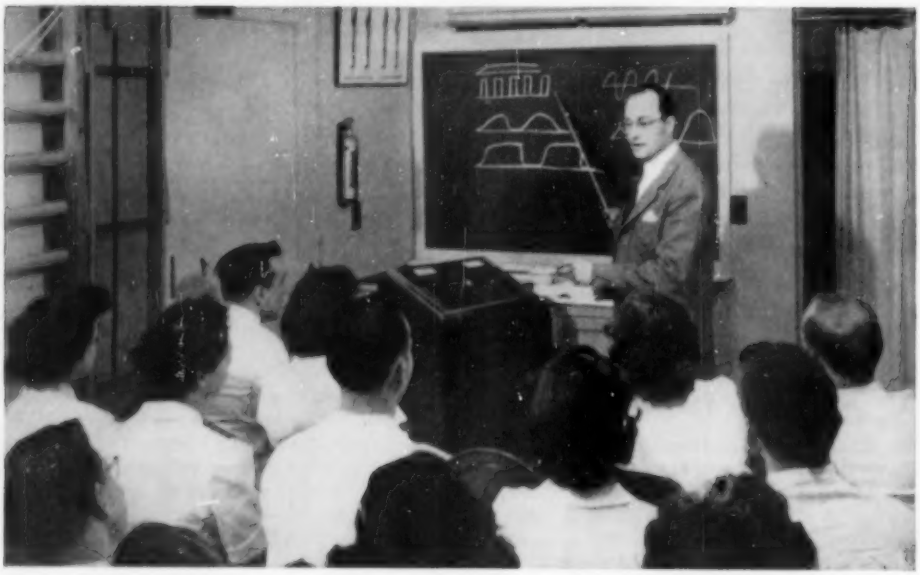
Milestones from Mayo

The Mayo Clinical Section on Phyical Medicine and Rehabilitation was organized in 1935 by Dr. Frank Krusen who has been a leader in the field, both national and international. He was the only staff doctor at the time, and had under him 13 workers who were graduate nurses (not therapists) whom he himself trained as therapists, with the aid of two teaching therapists he had brought from the school he ran previously in Philadephia. In 1939 Mayo's first class of physical therapists was graduated from a one-year course, 13 students receiving diplomas. From 1941-45 war emergency classes were set up, a six-month course followed by six months practice in an approved army hospital; about 50 students finished each course. Military and government physicians were also given an intensified course of three to six months duration, lectures being delivered by the Physical Medicine staff; this latter training program was carried out through the years 1942-47 and 1952-53.

About five years ago the Mayo Clinic Section on Physical Medicine and Rehabilitation instituted a two-year training program for physical therapists, the first class graduating in 1950 with 38 students. The first nine months consists of concentrated academic preparation; the last fifteen months is mostly supervised clinical work in the departments, combined with some didactic hours and seminars. The section comprises three separate clinical departments, one located at St. Mary's Hospital where the majority of hospitalized patients are treated; one at the clinic where ambulatory patients are treated; and a small unit at the Methodist Hospital. There is also a school for physical therapists in the Franklin Building and a research program carried on in the Medical Sciences Building.

At St. Mary's most of the rehabilitation of the seriously disabled is done; polios, paraplegics, quadraplegics, amputees, severe injuries, burn cases, and muscle transplants are treated. Twenty treatment booths, a hydro section, a children's gym and an adult gym are usually overcrowded. Five years ago while new buildings were being constructed the department for ambulatory patients was housed temporarily on the fourth floor of Worrall Hospital annex, just a block from the clinic buildings. In this area are 28 treatment booths, 2 leg whirlpools with booths, arm whirlpools, contrast baths, plus the necessary shortwave, microwave, ultrasound and other physical therapeutic machines, and bakers and lamps for every booth. This department treats mostly the short term patients who walk in unassisted, plus a few hospitalized patients from the lower three floors of Worrall. Mayo Clinic also has a third department in the section, located on the ground floor of the Rochester Methodist Hospital. This is a small compact unit designed by Dr. Krusen, complete with all necessary equipment. It contains five treatment booths, a hubbard tank, whirlpool bath, contrast bath, and gym—all comfortably placed.

Now we look forward to greater things. By May we hope to be moved from the crowded quarters at the Worrall Hospital into the sixth and seventh floors of the "tall" clinic building. Our new area, now under preparation, will contain the latest in treatment facilities. There we will have 56 booths, 12 consultation rooms, 2 rooms for clinical research, a hubbard tank, leg and arm whirlpools and contrast baths, 5 work rooms, a crutch room, and of course utility rooms. A large and complete adult gym, a smaller but just as complete children's gym, raised areas (wheel chair height) for mat work —these are just a few more features. The total



Classroom scene. Staff physiatrist lecturing to Senior class.

area boasts an intricate signal light system whereby one can look down a corridor and determine whether or not a booth is occupied; and if vacant, whether it is ready for occupancy or not yet cleaned. There is also a combined light and buzzer system by which patients may call the physical therapist. In one portion of the sixth floor, in addition to a waiting room and consulting offices there will be a lounge and coffee room and a group instruction and lecture room seating 50 people.

St. Mary's at present is building a large addition which will make it over a thousand-bed hospital. The first floor of the total new area is to be given over to the Section of Physical Medicine and Rehabilitation and to Occupational Therapy. Here also the physical therapy department will be much enlarged and highly improved, but it will not be ready for occupancy until 1956. The number of treatment booths will be increased, the hydrotherapy section will have two hubbard tanks and a large walking exercise tank, the gym area will be doubled, and an outdoor courtyard for gait training will be added to the present facilities.

The Section on Physical Medicine and Rehabilitation this past year has treated over 12 percent of total patients registered at Mayo Clinic. Annually we treat an average of 17,000 patients with over 107,000 visits; in the nineteen-year history of this section we have treated over 190,000 persons. The section is staffed at present by five physiatrists (Dr. Krusen and his associates Drs. Earl Elkins, Gordon Martin, Donald Erickson and Keith Stillwell), about ten "fellows" (doctors who are here to specialize, three or four each quarter going into the field of physical medicine to become physiatrists), 11 staff therapists, 40 junior class therapists in training, 29 seniors on clinical internship, ten aides, ten orderlies, five desk attendants, two secretaries, three supervisors known as chief therapists, and three instructors in the school.

Heading our school training program is Mr. Darrell Hunt, whom we all affectionately know as "Pop" Hunt; he listens to our problems and helps us to keep our eye on the goal. All students who come to the Mayo Clinic school have degrees in Physical Education or Science, are registered nurses, or have at least three years of college training in biological sciences. For the first six months they take a full course of classroom work, including lectures, special studies, practice sessions, and demonstrations. The following period of six months is spent in observing procedures and technics, assisting physical therapy

instructors in clinical work, and part-time continuation of classroom work. Their second year at the Clinic gives them the practical experience required to qualify for a graduation certificate.

Research in physical medicine and rehabilitation is conducted in both clinic and laboratory. The laboratory section in the Medical Sciences Building is under the direction of Drs. Wakim, Herrick, and Lambert. New fields where physical agents can be profitably used are constantly being explored, new technics evolved, and new devices and instruments developed. The physiatrists also are striving to convert new physical agents to medical use. Quantitative observations and measurements are the foundations for this research. Long hours in the laboratories and exacting record-keeping at the clinics have been responsible for rapid expansion in this field.

This has been a "spanorama" of Mayo Clinic Section of Physical Medicine and Rehabilitation, a large view covering the span of the passing years and looking into the future. This is how we as students see it; we are proud to have had the opportunity of becoming a part of it.

BEVERLY A. KINDIG
Mayo Clinic, Class of '55

Atypical or Typical

Believe me when we say, there are eighteen atypical and one typical student at the D. T. Watson School of Physiatrics. We arrived October fourth by plane, ship, bus, and car from all parts of the world with one thought in mind—to be a Physical Therapist. Since no one had had much experience in this field, we were very anxious to get started in our chosen career.

During the first few weeks we understood that there were to be nineteen students in the class, but only eighteen answered to the roll call. We wondered when he would arrive.

We started some of our fundamental courses such as anatomy, therapeutic exercise and physics, knowing that these subjects were linked together, but unable to find the connection. While searching for it we asked many questions to which we would receive the reply, "You'll get that later," (and we did!!). We decided to dig deeper into our books, listen to the instructors and just wait for the dawning light. There was another unanswered question which loomed in the back of our minds. "How could the mysterious nineteenth student ever make up the work of the past weeks?" This was one question that was crowded out of our minds as our heads began to spin with thoughts of electrons, protons, and molecules.

With the overabundance of enthusiasm that marks the novice, we looked ahead and knew everything would be clear and our heads would stop spinning. Then myology class started, and we found ourselves mumbling origins and insertions in our sleep, while we tossed and turned on our bed-boards that were supposed to be so good for our backs—but finally we settled down and decided that muscles are here to stay! After learning all the muscles it was clear why we had to learn every tuberosity, groove and border of every bone. Now, we thought, we had found peace of mind for at last things started to link together.

During the coffee and juice breaks our minds would wander back to the question, "Where was the nineteenth student who had not yet made his appearance?" Was he one of the many people we saw when we were giving exercises to the patients in the hospital; did he live behind the locked doors at the foot of the stars we passed everyday; or was he going to make his appearance at the Christmas party? When St. Nick arrived, there wasn't a package for that evasive student. This we felt was evidence that the student would never be at Watson. Nevertheless, the instructors insisted he would arrive. In the midst of learning physiology, arthrology and pathology we began to think that he must be here, but was invisible. Before long that dark cloud passed as if blown away by a strong wind, and at last we found the nineteenth typical student.

Yes, he arrived October fourth and has been with us for all these months. He is the typical human that we have been studying and learning so much about; the one over which we have 'burnt the night oil'. We have learned about him in our many courses which now form a unit; this is the typical student. Not only have we learned the anatomy and physiology of our typical student but also how to apply physical therapy to him when it is required.

This June when we begin our clinical practice we shall have some idea how to properly handle patients; we shall be conscious of what lies under the layers of skin and of how all the systems function to form an integrated unit. We can hardly wait for the arrival of this happy day in June!

GRACE SCHMITT
D. T. Watson School of Physiatrics

Physical Therapy Class at the State University of Iowa

State University of Iowa

The school year is two-thirds over, and we at the State University of Iowa think it is hardly possible that our class work is almost completed, and that soon we will be doing our clinical practice. We are a class of 22, 10 girls and 12 boys, from Arizona, Oregon, South Dakota, Nebraska, Illinois, Pennsylvania, Maine, North Carolina, Arkansas, and Iowa. Our course is a one-year certificate program, beginning in September with didactic work until June, and ending the first of October after three months of clinical affiliation.

So far we have completed courses in massage and surgery, and are currently taking anatomy, physiology, medicine, orthopedics, neurology, electrotherapy, human behavior, and therapeutic exercise. Throughout the year we have also had some experience with patients in the four hospitals right here on the S.U.I campus: General Hospital; Children's Hospital, which is a polio center for the state; the Hospital School for the Severely Handicapped; and a Veterans' Administration Hospital. We work two mornings a week, rotating every week, in the departments of these hospitals; and next summer we will affiliate in these same departments for three week periods. We feel very fortunate to have such close contact with these different hospitals, especially since many of the patients present unusual histories, as this is a state medical center.

We attend the local chapter meetings of the American Physical Therapy Association, and for the December meeting planned a Christmas party for the staff and some of the faculty.

Last month we were very privileged to meet and talk with educational advisor Dorothy Hewitt of the American Physical Therapy Association. She was very helpful in advising us about state licensing procedures and regulations.

JEAN F. CRESSY
Class secretary

Students Aid Easter Seal Drive

Students of the University of Connecticut, members of the Connecticut Chapter of Physical Therapy and the Society for Crippled Children and Adults, are working on a joint project. This project is the making of bunny costumes. These costumes will then be given to children who, dressed as rabbits, will then solicit money during the Easter Seal Drive.

This novel idea was started last year and the results were gratifying. This year, with all three organizations working together, the success of the drive stands an excellent chance of improving last year's record.

Miss Gertrude Norcross of the Society for Crippled Children and Adults has given much of her valuable time to this project and the members of the student branch, are grateful for her assistance.

"DOUG" WATSON, *President*
Student Branch of Connecticut
Chapter of the APTA
(University of Connecticut)

Early Hospital Training

Last year with the enrollment of the class of 1957, Bouvé-Boston School put into effect a revision of its curriculum.

One of the features of this change is that during the Sophomore year physical therapy students are able to observe at first hand the workings of a hospital and to take part in a recreation program for handicapped children or adults.

One-half day each week for one semester is spent in each of these assignments. This gives every student an opportunity to decide whether he will definitely be happy in this field. In this new system, a sophomore student, after getting an opportunity to study anatomy, education, psychology, sociology, and recreational activities, learns to apply these and in doing so develops a better understanding of disabled people.

Although this plan allows only a brief opportunity for experience in the hospital atmosphere, it brings one closer to the future and helps to make the study of things, which may have seemed insignificant, more understandable and important. All courses take on a new meaning and are seen in proper perspective as stepping stones to a final goal.

BARBARA GORMAN
Bouvé-Boston School

University of Michigan

The present class of physical therapy students will be the third to graduate from the University of Michigan this June, five with certificates and seven with degrees. When we began last June there were fifteen in the class, but Uncle Sam drafted two of the three men during the summer and one girl was lost to matrimony. Of the remaining twelve students, there is a representation from states other than Michigan: two girls from Ohio, one from New Jersey, one from Pennsylvania and our lone male hails from Florida.

Aside from the basic sciences and general clinical technics, the students have come in contact with some unique experiences and special opportunities. In August, the students attended Dr. Winthrop Phelps' clinical demonstration at the Rackham School of Special Education in Ypsilanti where many patients with varying types of cerebral palsy were presented. Dr. Phelps discussed these and made suggestions as to their management. The value of this experience was not only in the observation but the complete reprints of the lecture which were made from the tape recording.

When we began clinical observation two afternoons a week at the hospital in September, we were introduced to the Polio Regional Respirator Center, one of the nine centers in the country. Here the patients receive excellent care from doctors, nurses, occupational and physical therapists, social workers, and hospital school instructors, and we were able to observe and work with the polio patients from the acute stages in the contagious unit right through to the rehabilitation program in the physical medicine clinic. Also, as a part of our observation program we attended staff conference meetings where these patients were discussed.

Last November all the students helped plan and participate in the Eastern Michigan District APTA Chapter meeting held at the University Hospital. Three speakers discussed general management of the polio respirator patient. Dr. Dickinson, Director of the Respirator Center, spoke on respiratory physiology. Dr. Rae, Chairman of the Physical Medicine and Rehabilitation Department, presented the rehabilitation of the polio patient; and Dr. Murphy of the same department, discussed glossopharyngeal or "frog" breathing with a demonstration by a patient and a film on the subject. One of the students presented the speakers, and others acted as guides and prepared and served refreshments after the meeting.

At the University Hospital polio patients enjoy the special equipment from the Adaptive Equipment Shop where hand splints of various types, feeders, and other devices are designed and made for the individual patient requiring these aids. This department, in addition to the regular appliance and brace shop, is operated by men with

University Hospital

specialized training. During our clinical observation we saw patients being measured for the equipment and later we watched its construction.

One afternoon the class visited the Dysphasia Division of the Speech Clinic at the University. Here we observed special classes in mathematics, speech, reading and singing. Later we enjoyed a coffee hour with the patients. This session was of particular interest to us, because many, who have hemiplegia as a result of brain damage, receive physical therapy in our clinic.

Now, during the spring semester, we are scattered throughout the state in clinical training for sixteen weeks. All of us spend one-third at University Hospital in Ann Arbor, and one-third at each of two of the following centers: Rehabilitation Institute of Metropolitan Detroit; Sigma Gamma Hospital School, Mt. Clemens; Mary Free Bed Guild Children's Hospital and Orthopedic Center, Grand Rapids; and Bronson Methodist Hospital, Kalamazoo.

CAROLYN HANDVILLE
University of Michigan '55

Physical Therapy Students Sponsor Recruitment Drive

On April 23, 1955 the students of the Physical Therapy School of the Medical College of Virginia sponsored an Open House for prospective students.

In our recruitment program, we feel that if the students of high schools and colleges are given a chance to get an inside view of the actual training of a physical therapist, they will better understand our profession. We hope this will give them a clearer concept of what the field is and what the job entails.

The Open House has become an annual affair here at MCV. In the past it has proven most successful in helping acquaint students with our school as well as the profession.

The session began at 9:30 A.M. Saturday, April 23, 1955. It was held in the School of Physical Therapy, Memorial Hospital, where brief talks were given by the Medical and Technical Directors of the school, and the class president. Several movies concerning different aspects of the profession were shown.

After a lunch period, conducted tours of the various physical medicine departments of the hospital were held. The students demonstrated machines and apparatus which are used in a treatment program and gave explanations of the technics and usage of each modality. The visitors were given an opportunity to ask questions concerning different phases of the work.

Following the tours, an informal tea was held. At that time information about both the twelve-month and two-year courses was made available to the visitors.

The session ended about 4:00 P.M. but we hope that it marked the beginning of plans for a future career in physical therapy for many.

During the past month or so, students from our school have visited high schools and colleges in this area, have given talks and have shown movies concerning the profession and training for the profession. We hope this small endeavor will help create a stronger interest in physical therapy.

ANN MCINTOSH
MCV Reporter

Aided by a National Foundation for Infantile Paralysis Scholarship.

Workshop in Speech Problems in Cerebral Palsy

Announcement has been received of the following short-term course offered to speech therapists, occupational therapists, teachers of exceptional children, and physical therapists.

Name of Course

Workshop in Speech Problems in Cerebral Palsy

Sponsor of Course

The Orthopaedic Hospital, Los Angeles, California

Dates of Course

July 11, 1955—July 22, 1955
9:00 a.m. to 12:00 noon—1:30 p.m. to 3:30 p.m.—daily

Content of Course

Lectures, symposia, and panel discussions by physicians, educators, speech therapists, and occupational therapists concerned with the cerebral palsy problem. The morning sessions will be concerned exclusively with speech problems as related to cerebral palsy and will include demonstration sessions of both individual and group speech training. For further information contact the Director of the Course:

Robert Harrington, Ph.D.
Speech Pathologist
2400 South Flower Street
Los Angeles 7, California

Commissioning of Reserve Corps Officers Public Health Service

The Public Health Service is expanding and reorganizing the Commissioned Reserve for service in national emergencies. Leonard A. Scheele, Surgeon General, Public Health Service, states:

"Experience during World War II, and during the tense and often critical times since, leaves no room for speculation as to the need for a well-organized Reserve Corps, large enough to be effective, adequately trained, and organized for ready mobilization if and when a major national crisis develops.

"In the event of a successful attack on the United States, the care and treatment of casualties will be a monumental task, but as everyone in the field of public health knows, that will be only part of the problem. Those who escape direct injury will be the human resources we have left. Their health will have to be safeguarded at all costs.

"To be ready to deal with such a situation means that the public health forces of the country must be in a position not only to carry on necessary normal functions under abnormal conditions but to take on vital new responsibilities as well. In these circumstances, the present public health forces of the Nation will need substantial augmentation. Intensive action to control communicable diseases will become an immediate necessity. Essential public health services for displaced populations will have to be provided. Medical services in the Coast Guard will have to be expanded overnight.

"These are among the immediate considerations leading to the decision to expand and reorganize the emergency component of the Commissioned Reserve as a major part of an intensified defense program resulting from a delegation of new responsibilties by the Federal Civil Defense Administration to the Department of Health, Education, and Welfare approved by the President on July 14, 1954.

"In carrying out its assigned responsibilities, the Service has two fundamental objectives: (1) Effective emergency utilization of professional personnel with training and experience in public health and (2) augmenting these forces with physicians and other professional people not normally working in the field of public health.

"The prime purpose of the entire program is the development of plans that will enable physicians, and other professional personnel in and out of the field of public health to serve to the best possible advantage in a national crisis. As part of this objective, the Service will use every possible resource to train officers of the Commissioned Reserve in the health problems associated with atomic, biological and chemical warfare and in other emergency public health problems.

"An officer in the emergency reserve would be called to active duty without his consent only in the event of a national emergency publicly recognized as requiring such action. Furthermore, an officer in the emergency reserve already performing important health duties would not be called for service in another area unless the situation in that area clearly justified it."

Physical Therapists are among the professional personnel to be a part of this important program designed to augment public health programs in an emergency together with physicians, public health nurses, sanitary engineers, dentists, veterinaries, dietitians, pharmacists and medical record librarians. Applicants with obligatory service time must realize that a commission in the Reserve Corps on inactive duty does not satisfy draft requirements. Married women may apply but selection will be made on prior adequate plans for the care of their dependents.

Consideration will be given to regional distribution of reserve officers so that teams may be readily assembled in time of need. It is anticipated that the number of physical therapists in the Reserve Corps will be 100 the first year of the program and may be increased to 150 in the second year.

Physical therapists traditionally have responded to the call to service whether it be in the armed forces or to meet civilian needs such as in a polio epidemic. We feel sure that you will respond to the call from the Public Health Service to be part of an organized defense team to serve to the best possible advantage in a national crisis.

To obtain forms with which to apply for Commissions in the Reserve Corps of the Public Health Service write to: Surgeon General, Public Health Service (P), U. S. Dept. of Health, Education and Welfare, Washington 25, D. C.

General News

Dr. Charles U. Letourneau Heads Hospital Administration Program

Dr. Charles U. Letourneau has been appointed by the Board of Trustees of Northwestern University as Director of the Program in Hospital Administration and Associate Professor of Hospital Administration effective April 1, according to an announcement by Dr. Malcolm T. MacEachern, founder and present Director of the Program, and Prof. Richard Donham, Dean of the School of Commerce of which the Program is a division. Dr. MacEachern will continue his association with the Program as Professor of Hospital Administration, with the title of Honorary Director effective April 1.

Dr. Letourneau has been an Associate Director of the Program and Professorial Lecturer in Hospital Administration since February, 1953. He is a graduate of the Program, having received his degree of Master of Science in Hospital Administration in June, 1951. Since his graduation he has been on the staff of the American Hospital Association as Assistant Director, Secretary of the Council on Professional Practice, and Editor of *Trustee*, positions from which he resigned on March 31 to accept the full-time appointment at the University. In addition he will have certain hospital and editorial consulting assignments.

Charles U. Letourneau, M.D.

Before enrolling at the University in September, 1950, Dr. Letourneau was Superintendent of Queen Mary Veterans' Hospital in Montreal for four years, having been responsible for converting the 800-bed Montreal Military Hospital into this civilian facility without disruption of services. He had been in command of the military hospital since 1945 with the rank of Colonel in the Medical Branch of the Royal Canadian Army in which he had served since 1939. He holds a B.A. degree (cum laude) from Loyola College, Montreal; M.D.(C.M.) 1937 from McGill University, and also a degree in law (B.C.L.) from the latter university. He served as junior intern in 1937-38 and admitting officer in 1939 at Montreal General Hospital.

Dr. Letourneau has been a member of the American Physical Therapy Association Advisory Council for the past three years.

Health Careers Guidebook

Publication of the *Health Careers Guidebook*, giving the most comprehensive view of health occupations ever undertaken, has been announced by the National Health Council. A 160 page text-and-picture documentary, the *Guidebook* covers 156 different occupations in all kinds of health services from hospital maintenance to creative scientific research. Published by the Council and supported in the public interest by one of its sustaining members, the Equitable Life Assurance Society of the United States, it is the first step in the Council's new Health Career Horizons Project.

The *Guidebook* is being distributed without charge to every one of the nation's more than 29,000 secondary schools and junior colleges,

and through this nationwide distribution will reach their 7½ million teen-age students.

Intended primarily for use in secondary schools, the *Guidebook* was presented to the National Association of Secondary-School Principals, as one of the events of its 39th Annual Convention in Atlantic City. The invitation to issue the book at this time came to the Council through a special Health Careers Advisory Committee, appointed by the NASSP. A similar committee, appointed by the National Vocational Guidance Association, is also advising the Project staff. Through the cooperation of both committees, the *Guidebook* was given an informal pretest by students and educators in 30 schools.

During the presentation, the *Guidebook* was turned over to Mr. A. W. Dent, President of Dillard University in New Orleans and of the National Health Council, by Dr. Norvin C. Kiefer in behalf of the Equitable Society, of which he is Chief Medical Director. Dr. Kiefer is also a member of the Council's Board of Directors. After accepting the *Guidebook*, Mr. Dent presented first copies to Dr. James E. Blue, President of the NASSP, and to other officers of both the national association and its affiliates in the states. This presentation inaugurated the distribution to secondary schools.

What the Guidebook *Is*—Covering the whole field of health services and 156 different health occupations, the *Health Careers Guidebook* is a text-and-picture documentary for young people and their vocational counselors. The most comprehensive view of health occupations ever undertaken, it offers authoritative, objective, and up-to-date information on all kinds of health callings—no matter how much or little special training after high school they require. Not an occupational dictionary, its 160 pages of lively, human facts give meaning and reality to one of the most needed areas of the world's work.

How It Is to Be Used—Designed primarily as a counseling tool, the *Guidebook* is youth-centered and school-centered. It is to be placed in the hands of all secondary-school principals and vocational advisers throughout the country, for across-the-desk use when they are helping young people explore occupational opportunities. Its purpose is to help each individual—boy or girl—find a career of his or her own choosing.

What Makes It Distinctive—The *Guidebook* is unusual in its complete coverage of one of the nation's great occupational fields—the health services are 7th from the top in a census list of 77 major occupational groups, ranked in order of numbers employed. But other points about the *Guidebook* are at least equally distinctive:

- It will reach all the 29,000 public and private secondary-schools and junior colleges in the country—and their 7½ million teen-age students.
- It is being distributed without charge, as a public service.
- It has the widest possible cooperation and support among professional societies and other health agencies—each of its Health Careers Briefings on a particular occupational area has been reviewed by the appropriate organization and carries its name as a source of further information.
- It has similar cooperation and support from leading professional associations in the field of education—both its editorial policy and its nationwide distribution have been worked out with this kind of assistance.

Defense Advisory Committee on Women in the Services

The Defense Advisory Committee on Women in the Services was constituted in 1951 by Mrs. Anna Rosenberg, Assistant Secretary of Defense (Manpower and Personnel) at the request of then Secretary of Defense George C. Marshall, and held its first meeting in September of that year. This Committee is composed of fifty civilian women, selected on the basis of their national standing in business, the professions, and in civil or public life, with due regard to geographical representation. Members are appointed by the Secretary of Defense and serve for a three-year term as individuals and not as official representatives of any group or organization with which they may be affiliated.

The Committee advises the Department of Defense as requested on policies relating to women in the services and recommends to the Secretary of Defense through the Assistant Secretary (Manpower and Personnel) measures pertaining to the more effective utilization of women, expansion of opportunities, training, housing, health and nutrition, and educational and recreational standards. From a public relations standpoint the Committee has provided broad policy direction aimed to create further public acceptance of military service as a career for women; and to encourage the acceptance of a period of military

service as a citizenship responsibility by qualified women not desirous of making such service a career.

The first major project undertaken by the Committee was a short-term intensive recruiting drive in November 1951. The individual and collective efforts of the Committee members during this period, and subsequently, have resulted in the development of an effective and continuing public education program in support of the recruiting activities of the respective services. Since the recruiting or procurement problems for all nine of the women's components had certain common denominators, it was determined that a program dealing with these common factors was the best support that could be given. An unprecedented joint operation was, therefore, aimed at directing public attention to all women in uniform through every possible medium of communication. The excellent cooperation received from these and other groups during this period could not have been obtained by any one individual service nor could it have been given equally to all. This unified program has continued and has proved to be most successful.

The Committee has not only provided material assistance in the public education and recruiting campaigns but has conducted studies of certain aspects of training, morale, health, housing and medical services. Many of the Committee's recommendations involving action by the services have already been carried out.

A Secretariat located in the Office of the Assistant Secretary of Defense (Manpower and Personnel) provides a working staff for the operation of the Committee's business. The Secretariat is comprised of an Executive Secretary, Projects Coordinator, administrative assistant, and a clerical staff of two enlisted women. Women officers and enlisted women of the Army, Navy, Air Force and Marine Corps alternate in serving on the staff. The Directors of the nine women's components act as liaison officers between the Secretariat and their respective services.

The full Committee meets at the Pentagon in Washington, D.C., twice a year. An orientation field trip to installations of all services where women are stationed is arranged annually for the benefit of new members, and subcommittee meetings may be held from time to time in the event of necessity. In order to effectively accomplish its objectives and consistent with its primary function as a interpretive body, the Committee is organized into the following groups; education, professional, religious, organizations, and informational media. Assignment to one of the above mentioned groups, however, does not preclude the additional assignment of one or more Committee members to a special project.

Although, subject to the recent directive, the Defense Advisory Committee on Women in the Services meets in Washington only twice a year, during the first years of its organization these meetings were held more often. There have been 11 to date. The Committee has been addressed by such outstanding personalities as the President of the United States, the Secretary of Defense, the Assistant Secretaries of Defense, the Secretaries of the Army, Navy, Air Force; General Officers of all services and high ranking civilian officials of the Department of Defense and the U.S. Government. At the last meeting in October, 1954, Admiral Arthur W. Radford, Chairman of the Joint Chiefs of Staff, spoke to the committee on the current state of affairs.

A definite pattern of operation has now been developed whereby the Committee as a whole is constantly alert to the existing areas for constructive support and counsel, and the individual members are aware of their own potential for cooperation. The very nature of the Committee's mission is long range and the full value of the Committee's activities can be realized therefore, over a period of many years.

Louise Bailey, Physical Therapy Consultant for the National Society for Crippled Children and Adults, Inc., was recently appointed by the Secretary of Defense, Charles E. Wilson to serve for a three-year term as a member of this Committee.

Physical Medicine Societies Hold Spring Session

The Eastern Section of the American Congress of Physical Medicine and Rehabilitation held its spring session in Boston, April 23, 1955, in conjunction with the New England Society of Physical Medicine, the Sections on Physical Medicine of the Medical Society of Kings, the New Jersey Society of Physical Medicine, the New York Society of Physical Medicine and the Pennsylvania Academy of Physical Medicine and Rehabilitation.

Omission

Through error the name of Capt. Virginia L. Frost was omitted from "Our Book Reviewers for April." The *Review* is indebted to Captain Frost for her contributions to this department of the journal.

Captain Frost is Physical Therapist, Madigan Army Hospital, Tacoma, Washington.

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Physical Therapy Programs—1955

APPROVED BY THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS OF THE AMERICAN MEDICAL ASSOCIATION

DEGREE and CERTIFICATE PROGRAMS—Information on specific entrance requirements should be obtained from the schools listed below. Schools offering a degree will accept high school graduates for the four year program leading to a baccalaureate degree, *as well as transfer students.* A certificate program is a concentrated course of study offered to those who have completed all or most of their undergraduate work before declaring a major in physical therapy. Graduates of either the degree or certificate programs are equally qualified.

	Degree Program	*Certificate Program*
California		
School of Physical Therapy Childrens Hospital Society (Univ. of California at Los Angeles) 4614 Sunset Boulevard Los Angeles 27	†	†
School of Physical Therapy College of Medical Evangelists White Memorial Hospital Boyle and Michigan Avenues Los Angeles 33	†	*
Department of Physical Therapy University of Southern California University Park Los Angeles 7	†	†
Curriculum in Physical Therapy School of Medicine University of California 3rd and Parnassus San Francisco 22	†	†
Division of Physical Therapy Stanford University Stanford	†	†
Colorado		
School of Physical Therapy School of Medicine University of Colorado 4200 East 9th Avenue Denver 7	†	†
Connecticut		
School of Physical Therapy University of Connecticut Box U 101 Storrs	†	
Illinois		
Course in Physical Therapy Northwestern University Medical School 303 East Chicago Avenue Chicago 11	†	†
Iowa		
Department of Physical Therapy State University of Iowa University Hospitals Iowa City		†
Kansas		
Section of Physical Therapy University of Kansas Medical Center 39th and Rainbow Boulevard Kansas City 3		
Louisiana		
School of Physical Therapy Charity Hospital of Louisiana 1532 Tulane Avenue New Orleans 12		†
Massachusetts		
Department of Physical Therapy Boston University Sargent College of Physical Education 6 Everett Street Cambridge 38	†	†
*Course in Physical Therapy Bouve-Boston School Tufts College Medford 55	†	
*Program in Physical Therapy Simmons College The Fenway Boston	†	†
Michigan		
Curriculum in Physical Therapy University of Michigan 1313 East Ann Street Ann Arbor	†	†

*Accepts women students only.

	Degree Program	Certificate Program
Minnesota		
School of Physical Therapy Mayo Clinic 102-110 Second Avenue, S.W. Rochester		†
Course in Physical Therapy 860 Mayo Memorial University of Minnesota Minneapolis 14	†	
Missouri		
Division of Health and Hospital Services St. Louis University 1325 South Grand Boulevard St. Louis 4	†	
Department of Physical Therapy School of Medicine Washington University 660 South Kingshighway St. Louis 10	†	
New York		
*School of Physical Therapy Albany Hospital (Russell Sage College) New Scotland Avenue Albany 8	†	†
Courses for Physical Therapists Columbia University College of Physicians and Surgeons 630 West 168th Street New York 32	†	†
Physical Therapy Division School of Education, New York University Washington Square East New York 3	†	†
Program in Physical Therapy University of Buffalo 2183 Main Street Buffalo 14	†	†
North Carolina		
Physical Therapy Course School of Medicine Duke University Durham		†
Ohio		
Course in Physical Therapy Frank E. Bunts Ed. Inst. Cleveland Clinic Hospital 2020 East 93rd Street Cleveland 6		†
Pennsylvania		
Division of Physical Therapy School of Auxiliary Medical Services University of Pennsylvania 1818 Lombard Street Philadelphia 46	†	†
Division of Physical Therapy The D. T. Watson School of Physiatrics (In affiliation with the University of Pittsburgh) Sunny Hill Leetsdale	†	†
Puerto Rico		
School of Physical and Occupational Therapy Commonwealth of Puerto Rico State Insurance Fund San Juan, P.R.		†
Texas		
Grady Vaughn School of Physical Therapy Baylor University University Hospital Dallas	†	†
Hermann School of Physical Therapy Hermann Hospital 1203 Ross Sterling Avenue Houston 5		†
Division of Physical Therapy University of Texas School of Medicine Galveston	†	†
Virginia		
School of Physical Therapy Baruch Center of Physical Medicine and Rehabilitation Medical College of Virginia 1203 East Broad Street Richmond 19	†	†
Wisconsin		
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*Physical Therapy Course Medical Field Service School Brooke Army Medical Center, Fort Sam Houston, Texas and Brooke, Letterman and Walter Reed Army Hospitals Write to: The Surgeon General Department of the Army Washington 25, D. C. Att: Personnel Division		†

*Accepts women students only.

Please direct all inquiries regarding tuition, entrance requirements and other specific information to the school and *not* to the American Physical Therapy Association.

Abstracts

Electromyographic Studies on Posture in Paraplegics

J. Melzak and F. D. Stott, PROC. ROYAL SOC. MED., 47:1113-1116, December 1954.

This short and interesting paper was presented at a joint meeting of the Section of Orthopedics and Section of Neurology of the Royal Society of Medicine at the National Spinal Injuries Center, Stoke Mandeville Hospital, Aylesbury, England. The basis of the paper is an electromyographic study of the part played by the various normal and paralyzed muscles used in maintaining posture in spinal man. Although postural sensation like all other forms of sensation is abolished following complete lesion of the spinal cord in man, it is possible to exercise control of posture in the paralyzed parts of the body, and to maintain equilibrium in the erect position. This is accomplished in particular by the latissimus dorsi which has its segmental innervation in the spinal cord above the level of the lesion, and its origin in the paralyzed part of the body.

Electromyographic studies were made on four muscle groups—the latissimus dorsi, gluteus maximus, quadriceps and hamstrings. The electrodes were applied while the patient was sitting between parallel bars. Activity was then recorded (1) during rising to the erect position with the aid of parallel bars, the patient supporting himself with both hands and keeping the forearms in extension, (2) while remaining erect and balanced, (3) while changing from an erect to a relaxed leaning forward position on the bars, and (4) while sitting down from an erect position. Recordings were also made on some of the patients during adduction of the arm against resistance while in a lateral position.

Vigorous activity of the latissimus dorsi was found in all the patients while rising from the sitting position and during the maintenance of posture in the standing position. Also, vigorous activity in the quadriceps and hamstrings and varied activity in the gluteus maximus was recorded during the act of rising. In the standing position, the activity in the quadriceps tended to decrease, while the hamstrings remained active all the time. It was interesting to note that when the patient was lying in a lateral position, adduction of the arm against resistance produced good contraction of the latissimus dorsi with upward tilting of the pelvis, but did not elicit any action potentials in the paralyzed muscles. It appears therefore that a stretch reflex is elicited, resulting in reflex contractions of the four paralyzed muscles tested, when the legs were made to carry some of the patient's weight. These interesting findings may prove, if confirmed by further study, that the isolated cord in the spinal man may be trained to some extent of coordinated function.

Respiration and Speech in the Cerebral Palsied Child

Marvin L. Blumberg, AM. J. DIS. CHILD., 8:48-53, January 1955.

Speech is frequently affected in cerebral palsy. The brain centers of respiratory regulation, as well as the pharyngeal and laryngeal muscles of respiration, speech and deglutination may be involved. Some pertinent points in the physiology and neuroanatomy of respiration are reviewed.

Pohl states that breathing disturbances are common in cerebral palsy owing to impairment of control of the respiratory muscles. The thorax and abdomen frequently are not synchronized in their movements, causing breathing to be arrhythmic and speech to be spasmodic, irregular, and weak in volume.

Respiration is one of the most important parts of speech. It produces the air currents for phonation and is an essential factor in proper speech phrasing. Other factors are also necessary for speech. There must be afferent pathways for sensory impression: auditory, visual, and tactile. Sensory, thought and association, and speech areas of the cortex must be intact to a certain extent. A certain level of intelligence is required. Certain efferent neural pathways innervating the muscles of the mouth, throat, chest, and abdomen must be intact.

The commonest causes of dysarthria in cerebral palsied children are discussed. The results of a study made on 27 cerebral palsied children, reveal that in general speech is better in spastics than in athetoids with respect to volume, phonation, and general control. Also, respiration is better in spastics in regard to regularity of rate and rhythm, depth, and volume. This may be explained by the fact that the hypothalamus plays a significant role in the regulation of respiration and that the hypothalamus may frequently be affected in the athetotic person.

Respiration training must have a twofold purpose: the proper usage of the "bellows apparatus" and the increase in pulmonary tidal volume and vital capacity. Speech therapy is largely concerned with training of lips, cheeks, tongue, palate, and vocal cords. Physical therapy helps respiration and therefore speech, mainly by the training of chest, abdominal, and diaphragmatic muscles. Some additional methods of respiration training are introduced by the author.

Progressive Heavy Resistance Exercises for the Forefoot and Lower Limb

M. W. Chepesuik, CANAD. M. A. J., 72:108-111, January 15, 1955.

The problem of the so-called "frozen" forefoot is frequently seen after removal of a cast in lower limb fractures. Efforts to reduce its occurrence by static muscle contractions are not too successful. The value of heavy resistance exercise by various technics to promote early return of muscle power is well known, but little effort has been made to apply this heavy resistance principle towards mobilizing the forefoot and foot prior to and during ambulation.

The method advocated here is based on the application of progressively heavy cylindrical weights to the inverted feet and forefeet, which are required to grasp, lift and maintain these weights while fully flexing and extending the knees. A complete description of the apparatus, the exercise and the routine used are described in the paper.

As a result of the exercise, the commonest sympton complained of was soreness of the abdominal muscles and inguinal area in the first week. These symptoms disappeared rapidly as the patient was reconditioned. No case of joint effusion or pain occurred as a result of the exercise. The author feels this exercise offers maximum power to the forefoot and foot without weight-

bearing. It has proven successful in treatment of specific foot conditions such as fractures of the os calci, talus, tarsals and metatarsals as well as in general lower limb reconditioning following such conditions as fractures of the femur, patella and hip.

The low cost of the apparatus and the simplicity of the exercise regimen should permit ready acceptance in physical medicine programs.

Late Post-operative Care after Chest Operations

R. Abbey Smith, BRIT. J. PHYS. MED., 18:1-5, January 1955.

The management of the patient after chest surgery falls into two phases—the treatment of the patient while still in the hospital and the supervision of the patient's return to a useful, normal life. This paper is concerned with the second phase. Only a few of the commonest conditions and their related complications are discussed. These are thoracoplasty, lung resection, and operation for empyema.

Following thoracoplasty a patient may complain of dyspnea, pain, and an increase in cough, stiffness of the shoulder, and weakness of the arm on the side of operation. Increasing winging of the scapula from division of nerves may be more evident a year after operation. Pain which appears later in the patient's convalescence may be due to: (a) periarthritis of the shoulder or vertebral joints associated with scoliosis; (b) angle of the scapula impinging on the rib as the shoulder girdle falls on the side of operation; and (c) involvement of the first thoracic intercostal nerve in scar tissue and regenerating bone. Anesthesia down the front of the chest wall from division of nerves may be interpreted as pain or tightness. Division of the sympathetic nerves may give rise to a Horner's syndrome on the side of operation and a feeling of increased warmth in the hand.

After a lobectomy for bronchiectasis a patient is advised to continue breathing exercises and postural drainage for a long period. Following pneumonectomy for tuberculosis it is customary for a thoracoplasty to be used to obliterate the space because of a greater tendency to infection, to prevent overexpansion of the remaining lung and to prevent movement of the mediastinum. Following pneumonectomy for carcinoma the space left is not as a rule obliterated by a thoracoplasty. It slowly obliterates by elevation of the diaphragm, movement of the mediastinum to the side of operation and organization of the blood clot. A patient should be encouraged to return to work. It is important that the work should not be overtiring, should be remunerative and should in some way resemble that to which the patient is trained and accustomed.

The operative treatment of acute empyema is either by tube drainage or decortication of the lung. It is important that breathing exercises be instituted and continued until such a time as both sides of the chest move equally and normally. The importance of exercises to prevent scoliosis should also be stressed.

Pre-operative Aspects of Pulmonary Function in Thoracic Surgery

Dott. Aldo de Maria-Marthiano, BRIT. J. PHYS. MED., 18:5-9, January 1955.

The author observed physical therapy methods for chest diseases in London, then returned to Rome. As a result, several physical medicine centers for thoracic patients were established in Rome and other Italian cities. This paper is based on the results of the work in these treatment centers.

The importance of physical medicine in relationship to chest diseases has increased during the last 15 years. Physical exercises are very useful to the patient before and after operation. In a surgical chest center the tests of pulmonary function are of great practical interest. They form the basis of testing the resistance of the lung patient to operative trauma and the functional consequences of the surgery. They help to establish a more precise diagnosis and may influence the type of operation.

Spirometric tests are considered the simplest and most useful volumetric examination of the pulmonary phase of respiration. Heart catheterization is often practiced in order to study the hematological respiratory function. This exploration is necessary when the other tests do not explain satisfactorily a cardiorespiratory deficit.

Breathing exercises are important in obtaining a good intra-alveolar pressure and in insuring that a discrete quantity of oxygen will reach the alveolus without being lost during the passage into dead space. Breathing exercises will improve the ventilation in those segments which have been little used. Physical therapy also includes postural exercises, postural drainage, and massage.

Case histories of 283 patients are analyzed and discussed. From these studies it is concluded that physical therapy tends to normalize the breathing frequency, to increase the vital capacity, to increase the reserve air and to constantly increase the maximal breathing capacity. Experience has shown that, from the functional point of view, the patient's postoperative course and the surgical results have been comparable to the recovery reached in the preoperative period. Therefore, it is possible preoperatively to assume an opinion about the functional consequence of the operative procedures. It is also found that some patients, who otherwise could not be submitted to the operative trauma, are able to tolerate surgery.

Clinical Observations on Vasosensory Innervation of Lower Extremity

Lawrence N. Atlas, ARCH. SURGERY, 70:17-24, January 1955.

This paper is particularly interesting because of its suggested explanation of phantom limb pain. Peripheral vascular sensibility has long been a controversial subject. This paper is based on the clinical concepts of Leriche. He concludes that peripheral arterial tissue has a sensory innervation, that the neurons concerned with peripheral vascular sensibility course through the extremities within adventitia and that these afferents pass through the extraspinal portion of the sympathetic nervous system before entering the spinal cord. Leriche has maintained consistently that an inflamed artery is equivalent to an inflamed sensory nerve.

Six cases are presented in this paper—two exhibiting a causalgic-like pain of the lower leg, three exhibiting phantom limb pain, and

one suffering from causalgic osteoporosis of the knee. In each case the pain was finally relieved by section of the thrombosed segment of an artery.

Attempts to relieve phantom limb pain by peripheral neurotomy, segmental rhizotomy, and even spinothalamic tractotomy have been unsuccessful. It is believed that the mechanism responsible for the phantom limb pain is the inflammatory irritation of vasosensory fibers with projection of pain sensation into the missing distal portion of the extremity. Therefore, section of the major arterial remnant at the proximal limit of its occlusion should be the initial therapeutic approach in any case of phantom limb pain.

A suggestion is also made concerning the relief of pain in organic arterial disease of the leg. The successful clinical results obtained with high lumbar sympathectomy may well reflect a vasosensory denervation instead of the more extensive denervation.

Physical Medicine for the General Practitioner

Leonard D. Policoff and Herbert W. Park, VIRGINIA M. MONTHLY, 81: 598-600, December 1954.

The paper is one in a series of articles in which the aims and scope of the specialty of Physical Medicine and Rehabilitation are discussed. The authors, who are practicing in this field, are writing primarily for the general practitioner who should consider, as a primary objective, "preventive rehabilitation" or "disability control."

As an example of preventive rehabilitation, the treatment of the hemiplegic patient, after a cerebral vascular accident, is discussed. Beginning, if possible, about 72 hours after the accident, bed positioning is of primary importance. The patient should be turned frequently to prevent decubiti and the extremities should be positioned to avoid contractures. Passive exercise, moving the extremities through the entire available range of motion, is next instituted. With the patient's general physical and mental improvement, muscle reeducation and strengthening follows. Herein, heat and massage may be desired if there is pain and edema. With further progress, attempts at sitting and standing balance are begun, ending ultimately with ambulation.

The above program should be carried out by a trained physical therapist who, in turn, can instruct a member of the family to assist.

New Federal Legislation for the Handicapped

E. B. Whitten, J. REHABIL., 22:4-6, November-December 1954.

The 83rd Congress of the United States passed three pieces of legislation concerned with expanding rehabilitation opportunities for the handicapped as follows:

1. Medical Facilities Survey and Construction Act of 1954 (Public Law 482) is an amendment to the Hospital Survey and Construction Act. The new Act authorizes the Federal Government to financially assist the states in the construction of chronic illness hospitals, diagnostic and treatment centers, nursing homes, and rehabilitation centers. The initiation and planning of the project is the job of the state. The pecuniary allotments for each state will be based upon the population—per capita income on which the Hill-Burton funds are now distributed.

2. The Vocational Rehabilitation Act Amendments of 1954 is a substitute for Public Law 113 of the 78th Congress. The Act will be administered on a federal level by the Secretary of Health, Education and Welfare. The purpose of the Act is to increase the number of persons annually rehabilitated. There are three separate rehabilitation funds. The first fund, entitled "Rehabilitation Services," is to assist the states in carrying on basic rehabilitation and to make the handicapped employable to the maximum degree. The second fund, "Extension and Improvement," is to help improve the quality or rehabilitation services. The third fund is for "Special Projects," such as research, demonstration and education of rehabilitation personnel.

3. The 83rd Congress passed many amendments to the Social Security Act. Included in the amendments are provisions concerning the maintenance of benefits of insured persons. If a person is totally and permanently disabled and thereby unemployed before he reaches retirement age, he may apply for Social Security benefits.

Some Observations on the Function of Pulmonary Structures

L. D. Vandam, AM. J. SURG., 89:101-105, January 1955.

This paper is concerned with some of the functions of pulmonary tissues other than those related directly to respiration.

Pulmonary function properly may be said to begin at the larynx. The larynx is the valve of the respiratory tract and as such protects the lungs against the entrance of foreign material. The laryngeal muscles are innervated solely by the vagi and since they widen during inspiration and narrow during expiration it is probable that these movements are reflex phenomena akin to the Hering-Breuer reflexes. Closure of the larynx is also needed for development of positive pressure within the thorax or abdomen. If the larynx remains closed under adverse circumstances, a greater increase in positive thoracic pressure can lead to circulatory collapse by interfering with the return of venous blood to the heart.

The trachea and bronchi form the conduction portions of the lung—the anatomic structure of the pulmonary tree is described here in some detail. A structure of functional significance in the tracheobronchial passages is the lining epithelium consisting of ciliated columnar cells with mucus-secreting cells interposed. Ciliary action and mucus secretion play a paramount role in prevention of infection and elimination of foreign material. Normally, the cilia flagellate constantly in an oral direction, this action being one of the chief hindrances to atelectasis in men.

The cartilaginous rings which are found in the tree as far down as the terminal bronchioles serve to maintain a patent airway. These rings do not completely encircle the walls which permits changes in the caliber of the passages to be mediated by smooth muscle. Smooth muscle fibers are found throughout the lungs; around the airways they are arranged in a geodetic manner which allows changes in both length and diameter of the trachea and bronchi during respiration. During inspiration there is lengthening and dilation of the bronchi while in expiration the reverse occurs. These changes are probably under reflex nervous control.

The lungs are the only organs of the body with a double supply of arterial blood. Under normal cir-

cumstances the bronchial arterial system has purely a nutritional function for the tissues of the lung and pulmonary passages. This function explains the termination of the bronchial arteries at the point of division between the conducting and the respiring elements of the bronchial tree. It is possible, however, that the bronchial arteries may play a role in the development of pulmonary edema and may contribute to the partial oxygenation of systemic arterial blood. When there is destruction of pulmonic tissue, obstruction to blood flow in the pulmonary artery or a diminished pulmonic blood flow for any reason, the bronchial arteries can take over the respiratory function of the pulmonary arteries. Unlike the bronchial arteries, the pulmonary arteries seem to be relatively free of neurogenic influence. Like cardiac and cerebral circulation, the pulmonary arteries respond to changes in partial pressures of oxygen and carbon dioxide. In these arteries, an additional method for regulating blood flow has been shown to exist in the partial pressures of oxygen and carbon dioxide in the alveoli. Thus, low oxygen tensions in the alveoli lead to vasoconstriction which is the opposite to what might be expected, but it is a purposeful regulation in that the pulmonary blood flow is shunted toward well ventilated areas of the lung.

The lungs, like other viscera, have a nerve supply from the autonomic system with representation from both the sympathetic and parasympathetic portions. The functions of these nervous elements has never been clearly established.

Reference is made in the article to the reactive phenomena which occur frequently during anesthesia and to reactions of pulmonic tissues in the prevention of infection.

Early Clinical Diagnosis of Congenital Dislocation of the Hip

J. C. R. Hindenach, LANCET, 1:No. 6853, 15-16, January 1, 1955.

The diagnosis of congenital dislocation of the hip should be made early in life—before the child is three months old. An impression of the possible diagnosis may be obtained by two relatively simple but reliable clinical tests.

Test 1. The infant is laid on his back with the hips flexed to 90° and knees in maximum flexion. If one knee is lower than the other, there is possible unilateral dislocation of the hip on the side of the lower knee. Also, the examiner should attempt to abduct the previously flexed thighs. A limitation of abduction of less than approximately 80° also suggests dislocation of the hip.

Test 2. When performing the flexion-abduction of the thigh test, the clinician should observe carefully the following: If an audible, visible and palpable jerk or snap is noticed (Ortolani's "sign of the jerk"), the test is clinically positive. This jerk occurs as the femoral head slips over the posterior rim of the acetabulum.

When these clinical tests indicate possible congenital dislocation of the hip, further verification by roentgenological means is indicated. Treatment should be initiated early also with the use of Frejka's abduction pillow or with broad thick diapers.

Tactile Adaptation Disturbances in Lesions of the Nervous System

Robert Jaffe, ARCH. NEUROL. AND PSYCHIAT., 73:57-65, January 1955.

Sensations in nearly all modalities show the phenomenon of negative adaptation. That is, under continual and unchanging application of a given stimulus the characteristic sensation evoked disappears after a given interval. The importance of the phenomenon of adaptation becomes evident when one considers that a large proportion of the stimuli that impinge on the individual during the course of his existence may extend over considerable periods without changing in intensity. This is demonstrated not only in the tactile modalities, but in olfaction, vision, and also position sense.

Many investigators have concluded that tactile adaptation is a function of the end-organs and peripheral nerves. Some investigators go so far as to take the mechanism entirely out of the nervous system and present evidence to show that adaptation is due to loss of effectiveness of the stimulus rather than to any loss on the part of the end-organ. It has also been shown that disturbances in adaptation occur in persons with lesions of the central nervous system.

The purpose of the present study was to further the investigation of disturbances in sensory adaptation in persons with lesions of the central nervous system. Studies were performed on a group of brain-injured veterans of World War II, on hospitalized patients who had lesions of the brain, brain stem and spinal cord, on normal controls, and on subjects with peripheral nerve injuries. The somatosensory functions of the subjects were evaluated in a series of tests. Both hands were tested for two-point discrimination, graphesthesia, astereognosis, touch and pinprick sensibility.

The results of this study confirm the view that cutaneous adaptation is not a unique function of the end-organs and peripheral nerves. On the contrary, the defects in adaptation seem to become increasingly apparent with greater involvement of the central nervous system. Also, more of the subjects showed disturbance in adaptation when tested by the method of double simultaneous stimulation than when tested one hand at a time. This finding is consistent with the significance of bilateral interaction in tactile perception as shown in other studies, and supports the above finding. In general, then, these studies indicate that tactile adaptation is determined by a complex interaction of central and peripheral processes.

A Study of Gamma Globulin in Rheumatoid Arthritis

J. H. Vaughan, A. Armato, J. C. Goldenwait, P. Brachman, C. B. Favour and T. B. Bayles, J. CLIN. INVESTIGATION, 34:75-85, January 1955.

This paper described efforts to find a relationship between plasma gamma globulin and joint tissue in rheumatoid arthritis. I^{131}-labeled gamma globulin from both normal and rheumatoid subjects was equilibrated in vitro and in vivo with normal and rheumatoid joint tissue and the uptake of the radioactivity by the tissue measured. In addition, the disappearance of similarly tagged gamma globulin from the blood was followed in rheumatoid patients and controls.

Although none of the subjects and none of the tissues studied appeared

to differentiate between normal and rheumatoid globulin, two factors are worthy of note. First, there was considerable variability in the different gamma globulin experiments perhaps due to unrecognized variations in the procedures by which the protein was prepared and perhaps due to varying rates of denaturation. Second, the patient with rheumatoid arthritis generally removed the injected protein from the circulation more rapidly than did the normal subject. This effect may have been caused by a general difference in the protein metabolism of rheumatoids such as that which is responsible for the negative nitrogen balance often found in this disease. The fact that the rheumatoid subjects were generally older than the controls may be considered but no correlation between the rate of disappearance and the subjects' age could be detected. The mere existence of a chronic disease may have affected the disappearance curves and future studies on patients with other conditions may shed some light on the specificity of this phenomenon. Finally, this observation could be interpreted as indicating that the patient with rheumatoid arthritis possesses immunological or other mechanisms whereby it is possible for him to remove aggregated or precipitated protein material from the blood stream more rapidly than is possible for the normal control.

No evidence was obtained to support the concept of a specific relationship between joint tissue and plasma gamma globulin in rheumatoid arthritis.

Tendo Achillis Bursitis (Winter Heel)

N. W. Nisbet, BRIT. M. J., No. 4901, pp. 1394-1395, December 11, 1954.

The author discusses the anatomy of the heel in detail and the kinesiological explanation for tendo achillis (tendon of Achilles) bursitis.

There is one bursa between the tendo achillis and the calcaneum and another smaller and more superficial bursa where the tendon is subcutaneous. Pressure on the expanded portion of the tendo achillis, transmitted to the deeper bursa may lead to an aseptic inflammation of the bursa.

Tenda achillis bursitis usually occurs in females and is caused by rubbing of the upper rim of the shoe against the back of the heel. The condition tends to recur each winter. The region of the insertion of the tendo achillis becomes swollen and painful.

Most cases respond to conservative treatment, which consists of careful fitting of shoes and the insertion of a thin layer of sorbo rubber mounted on the inside of the heel of the shoe. Some cases require surgical intervention whereby the lateral aspect of the tendo achillis is exposed, the bursa opened and the prominent posterosuperior angle of the calcaneum is removed.

Observation on the Motor System Following Cerebral Hemispherectomy

Lyle A. French and David R. Johnson, NEUROLOGY, 5:11-14, January 1955.

The paper is a report of pre- and postoperative observations of eight young patients who underwent cerebral hemispherectomy. The purpose of the surgery was to combat intractable convulsive seizures.

The patients had had the disabilities of convulsive seizures and spastic hemiplegia or hemiparesis since early life; seven out of eight since infancy. They ambulated with a spastic hemiplegic gait and for the most part could only perform gross movements of the upper extremities.

The amount of cerebral tissue excised surgically varied somewhat. In the last six operations the caudate nucleus and part of the hippocampus were also removed.

The early postoperative observations of motor activity revealed that the patients were flaccid hemiplegics, capable of performing gross movements. Within one to four weeks all patients were walking again. Four months following surgery, all patients walked as well as they had preoperatively, and one patient's gait had improved beyond that. The spasticity was present as before, but no worse. One patient who had had from 65 to 160 grand mal seizures a year before surgery in spite of mass doses of anticonvulsants, had not had any seizures in the six months following surgery.

It is believed that the motor systems of the eight cases were not further impaired by surgery, because the pathologic hemisphere was only offering a restraining effort on the motor function of the normal hemisphere. The contralateral hemisphere had assumed, before surgery to the best of its ability, the function of the pathologic hemisphere.

The Guillain-Barre Syndrome

Robert E. Crozier and Allan B. Ainley, NEW ENGLAND J. MED., 252: 83-87, January 20, 1955.

Seventeen cases of Guillain-Barre syndrome are reviewed in this study. These patients were observed at Grasslands Hospital, Westchester County, New York, between 1946 and 1953. Various concepts of the etiology and pathogenesis of this complex syndrome are discussed.

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The most acceptable concept of the pathogenesis at the present time appears to be that it is an allergic phenomenon.

The disease most frequently confused with the Guillain-Barre syndrome is acute anterior poliomyelitis, particularly the bulbospinal type. The many differences between the two diseases are discussed. In the Guillain-Barre syndrome the onset is usually gradual; sensory changes are an outstanding finding; the paralysis is symmetrical and widespread; it is slower as a rule to develop, usually taking two to six weeks; facial diplegia is present in most cases and the second, third, fourth, and sixth cranial nerves are often involved. Patients in whom respiratory paralysis of significant degree does not develop, usually experience a dramatic recovery, ultimately having minimal or no residual weakness or sensory changes.

Until recently there has been no seemingly successful therapy. Adequate nutrition, proper care of the paralyzed bladder or bowel, or both, and physical therapy have been sufficient for those patients without respiratory involvement. Those patients with significant involvement of the respiratory muscles present a far more serious problem. Artificial respiration, tracheotomy and the feeding of these patients are discussed. Recently the results of therapy with ACTH and cortisone have proved very convincing. This fact lends some support to the hypothesis that it is an allergic entity. Published reports indicate that if these agents are employed they should be used early during the progressive phase of the illness, when nerve-root edema has caused only functional paralysis. Later, when actual structural damage to the nerve is present, little improvement can be expected.

Small marginal fractures respond well to brief immobilization and gentle exercise. Fractures with severe displacement or comminution should be treated with excision of the head. Olecranon fractures require immobilization until healing is complete after accurate closed or open reductions comminuted fractures of the olecranon, however, do not respond well to any reduction procedures so excision of the fragments and suture of the triceps tendon of the distal fragment is recommended for good functional results. Intercondylar fractures disrupt the proper fitting of the articular surfaces of the radius and ulna with the capitellum and trochlea and lead to considerable disability. A closed method of reduction with traction through the olecranon is recommended. These fractures occur chiefly in adults.

Accurate knowledge of the number, location, and shape of ossification centers is essential in proper diagnosis and treatment of elbow injuries in children. Supra-condylar, transcondylar, lateral condylar and medial condylar fractures are common in children and should be reduced with the view of preventing both present and future deformity. The head of the radius does not commonly fragment in children but the neck readily compresses, resulting in a green stick fracture. The head fragment with its epiphysis must never be excised in children because loss of the growth center leads to shortening of the bone, loss of support on the radial side of the wrist and the deformity of a club hand.

In all fractures of the elbow, passive stretching in any manner must be rigidly avoided since this delays recovery and frequently leads to unnecessary permanent loss of elbow movement. Active exercise should be encouraged after immobilization is removed or discontinued.

This method of treatment depends on the fact that muscle shortening is an integral part of the pathology of acute poliomyelitis and persists indefinitely to a greater or lesser degree unless treated. Without treatment, such muscle shortening tends to weaken the involved muscles, prevent recovery of power by their antagonists, and produce deformities. Normal muscle length is obtained by stretching to a maximal degree to standards set by Ransohoff. Curare is required in the great majority of patients, as without it, stretching is too painful. The dosage, technic, and necessary precautions are described.

With this treatment, muscle recovery is facilitated, deformities of the extremities are not encountered, vascular changes and cyanosis do not occur, and limb length inequality is minimized. Minor scoliotic changes may occur owing to the difficulty of completely stretching the back.

Early exercise is an important part of the treatment, including early ambulation, except in certain groups of children. Muscle substitution is disregarded.

Braces are unnecessary: 1) They are unnecessary either for support or stability. 2) Their absence gives the body more freedom to exercise and recover function.

Patients with unrecognized poliomyelitis, as well as those not treated in this manner, develop muscle tightness which is recognizable even when complete recovery is believed to have occurred. Muscle tightness thus makes the diagnosis possible in the acute as well as the chronic phases. The definition of "normal range of motion" requires reconsideration. Muscle tightness is probably the chief etiological factor in the development of adolescent round back and of anterior metatarsalgia.

Fractures of the Elbow

W. H. Burnham, MINNESOTA MED., 38:16-18, January 1955.

Fractures of the elbow must be reduced with special care in order to prevent permanent disability. Thorough knowledge of the anatomy and functions of the elbow joint is prerequisite to intelligent treatment.

Falling on the outstretched arm often leads to varying degrees of fracture of the head of the radius.

Intensive Physical Therapy Aided by Curare in the Orthopedic Treatment of Poliomyelitis

V. H. Raisman and F. Courten, ACTA ORTHOP. SCANDINAV., 24:62-83, Fasc. 1, 1954.

The nonoperative orthopedic treatment of poliomyelitis is based on early and persistent stretching for restoration and maintenance of normal muscle length with the aid of curare.

Medical Relationships in a Rehabilitation Center

Jayne Shover, J. REHABIL., 22:12-13 and 36, November-December, 1954.

Through the rapid growth of formal rehabilitation programs a common philosophy of objectives and goals has emerged. However, some aspects of these rehabilitation programs need further clarification, especially the relationship with the medical profession.

Certain principles are agreed upon. 1. The cooperation, guidance and active participation of the medical profession are essential for the success of any direct service program for the handicapped. 2. A sense of teamwork is necessary to utilize the variety of personnel necessary. 3. Rehabilitation personnel should have the responsibility of interpreting their services not only to the public and to the patients, but also to the medical profession.

This article gives a summary of the viewpoints of ten medical specialists from major specialties, all directly concerned with rehabilitation. Three major problems were considered.

1. Should the type of medical supervision in rehabilitation centers consist of a medical director, or a medical advisory board? Criteria to be considered in the decision must include size of the center; availability of physicians, and nature of the services provided. For instance, if inpatient care is included, a medical director is necessary to assume responsibility for medical care within the institution.

2. The nature of the relationship between medical direction of the rehabilitation center and the referring physicians should be defined. Both the extent of supervision of the patient's rehabilitation by the referring physician and the importance of keeping the referring physician informed must be taken into consideration.

4. It is important that the rehabilitation center foster harmonious relationships with the medical profession. The medical profession in general needs to be informed of the philosophy, scope and objectives of rehabilitation centers, since many doctors are not fully aware of the advantages of rehabilitation as a formal program.

Cosmetic Prostheses

Felix B. Weinberg, J. REHABIL., 22: 9-11, November-December 1954.

The effects of serious disfigurement as a handicap in finding employment should not be minimized even though most rehabilitation programs are planned for the blind, deaf, or physically disabled. Many defects can be corrected by plastic surgery, but those which cannot or in which surgery may be contraindicated, a well-designed prosthesis may enable the person to lead a more normal life.

Tremendous advances in the plastics industry during the last twenty-five years have made available materials which are flexible, durable, light in weight, comfortable and lifelike. Long-lasting, realistic, and easily cared for prostheses can be constructed from such materials as vinyl plastic.

Congenital absence or complete loss of an ear through accident or disease may be compensated for by a prosthetic replacement which will restore the natural symmetry to the head and face. In complete exenteration, or other defects around the eye, the entire surrounding area—including lids, brow, and cheek can be replaced prosthetically. These prostheses are easily held in place by cosmetic adhesive, by external pressure, or with the aid of an eyeglass frame. Loss of the nose may be extremely deforming; because of its prominent position, it is necessary to exercise care in matching color and concealing edges of the prosthesis. Spectacle frames may aid in the latter.

Seamless vinyl cosmetic gloves have been found valuable not only for covering mechanical hands, but also for replacing missing fingers or segments of fingers. Cases were cited in which persons were able to return to occupations such as typing and piano playing with the aid of such a device.

Portions of human bodies may be constructed of some of the newer laminated plastics, now so popular for the automobile industry. These prostheses are useful for such cases as shoulder girdle atrophy or amputation, since they are strong, lightweight, easy to wear and help to restore natural symmetry and facilitate the wearing of clothes.

Stress Factors in the Etiology of the Rheumatic Diseases

S. J. Hartfall, BRIT. J. PHYS. MED., 18: 16-19, January 1955.

Stress is used in a special and particular way by Hans Selye in the development of his general adaptation theory and in the discussion of the adaptation diseases. The author describes very briefly the general adaptation theory of Selye. Selye defines stress as the sum of all the nonspecific biological phenomena in the body evoked by the application to the organism of almost every adverse internal and external environmental influence. The three stages of response of the adaptation defensive mechanism are alarm, resistance, and exhaustion when the diseases of adaptation make their appearance. Selye's theory presents an attractive theory of disease for a number of conditions not explained by existing theories—particularly in connection with the connective tissue or collagen diseases.

Does the theory contribute anything to preventive or curative therapy? In attempting to answer this question, the author discusses the incidence of emotional and psychogenic stress factors in rheumatoid arthritis. Dr. Hartfall also summarizes the stress features revealed in the past histories of 264 cases of rheumatoid arthritis. The predominant group of stress factors consisted of some type of psychological abnormality. The second largest group was the abnormality of the peripheral circulation. There was a large overlap between these two groups. Other stress factors, such as trauma and injury, drug serum hypersensitivity, acute infections, and focal infections make up small percentages.

There is no way to measure stress; in other words, there is no standard stress. Also, there is a great variation in the effects of apparently similar stress agents in different individuals. The effects of ACTH and cortisone are almost always only temporary. The full impact of stress and of the adaptation theory on clinical medicine cannot yet be assessed, but it has been a great stimulus to experimental research and it has had a profound influence on medical thinking.

Variations in the Vital-Capacity Measurement in Patients with Bronchial Asthma and Pulmonary Emphysema

L. A. Scarrone, R. Levin and A. L. Barach, NEW ENGLAND MED. J., 252: 57-59, January 13, 1955.

A study was made to ascertain the effect of the speed and force of expiration on the total volume of the vital capacity, with particular reference to patients with pulmonary disease. The vital capacity of normal subjects and patients with bronchial

asthma and pulmonary emphysema was recorded. The subjects were instructed to breathe slowly and steadily into the spirometer after a maximal inspiration. After a rest period, a second test was carried out, with instructions to the patient to exhale as rapidly as possible. The difference between the two measurements was calculated according to the following formula: slow minus fast vital capacity divided by fast vital capacity.

The results show a considerable difference in the vital capacity measurement in patients with bronchial asthma, and an even greater difference in those patients with pulmonary emphysema. Collapse of the bronchi may occur on forced expiration or cough before maximal emptying of the lungs has been achieved as a result of a relative increase of the intrapulmonary over the intrabronchial pressure. A variable degree of functional emphysema is present in patients with bronchial asthma during episodes of persistent bronchospasm. Expiration is then handicapped by the same check-value mechanism as occurs in anatomic emphysema. The value of pursed-lip breathing in the treatment of patients with pulmonary emphysema is associated with the slow expiration produced in this type of respiration, and also the tendency of back pressure to keep the bronchi open. From this study it is confirmed that a better emptying of the lungs is obtained by a slow expiration in the presence of bronchial obstruction.

Blood Pressure in Minute Vessels of Human Skin

Frank H. Leeds, Norman E. Freeman, Rutherford S. Gilfillan and Helio M. Coelho, ARCH. SURGERY, 70:25-28, January 1955.

Previous tests utilizing the principle of reactive hyperemia in the study of peripheral vascular insufficiency have been based mainly on the volume and rapidity of blood flow. Since the capillary pressure is the most important factor in the transfer of foodstuffs from the blood stream to the tissues, it occurred to the authors that the pressure in the minute vessels of the skin might be of greater importance in the evaluation of peripheral vascular disease than the volume flow.

The blood pressure in the minute vessels of the skin of the foot is estimated by a method of elevation and reactive hyperemia. The test consists in raising the feet 65 cm. above the auricle for two minutes and then applying occlusive cuffs for five minutes. If within one minute after release of the cuffs reactive hyperemia does not appear, the feet are gradually lowered until flushing takes place. This level is noted. The appearance of reactive hyperemia is also checked by use of the plethysmographic cup. The two methods agree quite closely. The studies are carried out in a constant temperature room at 24 degrees centigrade with the patient under standard conditions of exposure.

The patients were tested before surgery, within the first ten postoperative days, and again in the late postoperative period, up to one and one-half years. In 60 of the 83 sympathectomized limbs tested, there was a significant rise in filling pressure which was accompanied by definite clinical improvement. The rise in the filling pressure was usually greater in the late than in the early postoperative period.

The purpose of the sympathectomy is described and the results of this test in relation to a sympathectomy are further described. There appears to be a good correlation between the direct measurement of the pressure in the minute vessels of the skin of the foot and the level of reactive hyperemia as found in this test.

Clinical Evaluation of Pulmonary and Thoracic Elasticity in Chronic Poliomyelitis Patients

D. L. Waters, D. G. Dickinson and J. L. Wilson, AM. J. DIS. CHILD., 8:2-6, January 1955.

The elasticity of the lungs and chest wall is decreased in patients in whom there has been respiratory impairment due to poliomyelitis. This condition increases the work of breathing and decreases the efficiency of mechanical respiratory aids. It further affects the rapidity with which such patients can be weaned from mechanical aids and also influences the length of unassisted breathing time. These changes also explain why similarly involved patients may require different tank pressures for adequate ventilation.

The authors present in this paper an evaluation of a simple clinical technic for estimating the combined elasticity of the lungs and thorax which can be used wherever a tank respirator and a continuously recording spirometer are available. The study comes from the Poliomyelitis Respirator Center, Department of Pediatrics, University of Michigan Medical School.

Eight patients were included in this study. They were placed in tank respirators operating at 20 cpm, and respirations were recorded on the continuously recording spirometer. The tank pressure gradient was then set at −25 cm. of water, and the tidal air volumes were measured. The tank pressure gradient was subsequently reduced to 20, 15, 10 and 5 cm., respectively, with tracings of the tidal air volumes obtained at each pressure.

The data obtained are illustrated graphically by plotting the average tidal air volumes against the negative tank pressures. These curves represent a qualitative estimation of the elastic state of the patient's lungs and chest wall. It is felt that these results will suffice to provide the clinician with answers to important questions arising during the management of the convalescent respirator patient—what to expect of a patient when the time comes to get him out of a tank respirator.

The vital capacity is not a reliable guide here, since it is dependent upon both the extent of respiratory muscle paralysis and the elasticity of the lungs and chest wall.

An Attempt to Explain Fracture Types

C. Hirsch, A. Cavadias and A. Nachemson, ACTA ORTHOP. SCANDINAV., 24:8-29, Fasc. 1, 1954.

Clinically, certain types of fracture are considered to be due to specifically described forces. This is most common in fractures close to the joints. This paper reports the results of studies on the tibia and femur of rabbits. Special mechanical conditons were created to study simple combinations of stress, static as well as dynamic. Fresh bones were used from young rabbits. In 90 experiments all soft tissues were removed; in 9 experiments ligaments, tendons and muscles were left on but they did not alter the results. The fractures were produced in a compres-

sion apparatus and the bones subjected to forces acting in a vertical direction, in an oblique direction (15°), and by twisting 5°-15° in a vertical as well as in an oblique position. The fractures were produced by slowly increasing weights or by a falling standard weight.

The results from the 53 tibias studied are as follows:

1. Vertical loading of the tibia mainly produces fractures close to the metaphysis.
2. Oblique loading produces more diaphysial fractures, and, when the load is of short duration, comminuted fractures.
3. Twisting below 10° of the tibia does not change the amount of force necessary for a fracture, but breaks the bone closer to the ends.
4. Twisting above 10° tends to result in spiral fractures near the middle of the diaphysis.

The results from the 46 femurs studied are as follows:

5. It is interesting to note that the forces necessary to produce a fracture in a rabbit's femur are much less than in the case of a tibia. This may be due to the shape of the femur shaft.
6. Vertical loading mainly produces fractures close to the lower metaphysis.
7. Oblique loads result in more diaphysial fractures, and when the load is of short duration, comminuted fractures.
8. Twisting brings a spiral tendency into the fractures.
9. The fracture types are the same as those observed in the tibia.

Abstracts for May

Assistant Editors of the *Review* were aided in the preparation of the abstracts for May by Margot C. Trimble.

Book Reviews . . . . .

1954 Medical Progress: A Review of Medical Advances During 1953. *Edited by Morris Fishbein, M.D. Cloth; price $5.00. Pp. 345. The Blakiston Co., New York and Toronto, Canada, 1954.*

Medical knowledge and its annual growth is so vast that no one volume could ever encompass the total content of even one specialty. Therefore, it can be easily appreciated that this volume is highly selective in its offerings. It purports only to give the trends of research and attempts to select those which shall become permanent accomplishments.

Dr. Fishbein has selected competent authorities in each of the fields presented who have reported the advances within that field. Some reports are of continuations of surveys presented in the 1953 volume by the same title, while others are new articles and authors. The fields covered are: Cardiology—Heart Disease, Surgery, Nutrition, Gastroenterology, Rheumatic Diseases, Endocrinology, Newer Drugs, Urology, Infectious Diseases, Dermatology, Opthalmology, Ear, Nose and Throat, Allergy, Gynecology, Orthopedic Surgery, Psychiatry, Rehabilitation Medicine, Medical Psychology, and Physical Medicine.

In the field of Rehabilitation Medicine, Drs. Howard A. Rusk and Joseph G. Benton review the implications of this form of medicine and some of the unmet problems in the training of physicians, therapists, and other paramedical personnel. Following this, a section on Patient Management reviews in brief form the programs recommended for hemiplegia, amputations, poliomyelitis, rheumatoid arthritis, paraplegia, and quadriplegia. There is a final, brief review of self-help devices.

Drs. Frank H. Krusen and Gorden M. Martin have contributed the section on Physical Medicine. The development of the field as a specialty is reviewed and again the need for additional training for medical students is emphasized.

There follows a discussion of the current status of certain procedures and technics of treatment in Physical Medicine. A review of research and resulting conclusions is presented in the areas of Medical Diathermy, Ultrasound, Massage, Therapeutic Exercise, and Electrical Stimulation.

Basic research is reported in several fields, including the study of muscle tonus, muscle function, changes in circulation of the tissues, rheumatoid arthritis, painful shoulder, poliomyelitis and neurologic disorders.

This volume is an excellent one for stimulating the interest of the busy physician in pursuing later in detail the recent developments which he reads here in brief form.

Human Limbs and Their Substitutes. *By Paul E. Klopsteg, Ph.D., Associate Director, National Science Foundation; Philip D. Wilson, M.D., Surgeon-in-Chief, Hospital for Special Surgery, New York. Cloth; price $12.00. Pp. 844. Illus. McGraw-Hill Book Company, Inc., New York, 1954.*

This reference-type book presents the results of a research program for the Department of Medicine and Surgery, U. S. Veterans Administration, and the Office of the Surgeon General, Department of the Army, in the engineering and medical aspects of the human extremities and the application of this data to the design and fitting of artificial limbs and to the care and training of amputees.

The book is composed of articles written by thirty men who are experts in their fields. The articles are arranged in chapters and are grouped under the following headings: Part I Medical Problems of the Amputee, Part II The Upper Limb and Its Substitutes, Part III The Lower Limb and its Substitutes, Part IV Adjustment of the Limb to the Amputee and Part V Training and Evaluation.

It represents the most comprehensive treatment of the subject of amputees yet available. The photographs, charts, and drawings are well done. The type is clear and easily followed. The book is organized so that quick reference is possible and the articles are written with clarity. The bibliographical material seems excellent.

The chapters of greatest interest for the physical therapist are chapter 7 on "The Biomechanics of the Normal and of the Amputated Upper Extremity" under Part II and all of the Chapters under Parts III and IV. The latter deal with the biomechanics of the lower extremity and the fitting of upper and lower extremity prostheses. Chapter 3 dealing with cinoplasty surgery, chapter 4 with the influence of phantom limbs, and chapter 5 with the psychological adjustment of the amputee also provide good background material.

The section on the electric arm is interesting and shows one group's approach to the problem of providing a more nearly perfect replacement for upper extremity amputation; however, at its present stage of development, the arm is not efficient enough to be practical.

The component parts mentioned in the chapters on artificial legs and

artificial arms are continually undergoing research and are the sections of the book which will be most quickly outdated.

The weakest sections of the book are the chapters on prosthetic use training. They add nothing that the physical therapist could not be expected to know already and the information that is included can be found in other sources which are more complete.

While the book is not adequate for someone who is looking for information on the functional aspect of amputee treatment it certainly would be of value to anyone interested in a broad view of the field of amputees and gives excellent background material for the approach to amputee training.

Clinical Neurology. *By Bernard J. Alpers, M.D., Sc.D. (MED), Professor of Neurology, Jefferson Medical College, Philadelphia: Neurologist to the Jefferson, Pennsylvania, and Wills Hospitals, Philadelphia.* Third Edition. Cloth; price, *$9.50. Pp. 896; illus. 243. F. A. Davis Company, Philadelphia, 1954.*

This book was written for the medical student and practicing physician. In the opening chapters, the author presents important aspects in the neurological history and in the neurological examination. The meaning of the symptoms and signs are fully described. Because confusion in neurological conditions concerns localization of the diseased process, the writer analyzes pertinent facts in various categories of neurological localization. He points out the need for a sound understanding of the chief abnormal findings encountered in a neurological examination, in order to arrive at a proper and logical diagnosis. Subsequent chapters deal with the disorders associated with the various components of the peripheral and central nervous systems. Special chapters on headache, epilepsy, multiple sclerosis, and congenital and developmental disorders are also included.

The third edition is brought up-to-date with a revision of the discussions on poliomyelitis, meningitis, encephalitis, epilepsy, neurosyphilis, and aneurysm. The need for such changes depends, in part, upon the advances made in chemotherapy.

The book is thorough and well written. There are a number of excellent tables and illustrations. Although there is no bibliography per se, the names of the outstanding investigators appear in parentheses in the discussion which involves their contribution. Unfortunately, only a brief reference is made to physical therapy. It is felt by this reviewer that the neurologist, in general, is unaware of the advantages of physical therapy to his patient. Because of this, a chapter dealing with the fundamental concepts of physical medicine would be a worth while addition.

The book may be recommended as an ideal reference text to those workers in physical medicine.

Introduction to Psychiatric Occupational Therapy. *By Gail S. Fidler, OTR., and Jay W. Fidler, M.D.* Cloth. *Price $4.00. Pp. 200. Macmillan Co., New York, 1954.*

The authors: an occupational therapist, with wide experience in the psychiatric field both in civilian, army, and veterans hospitals; and a psychiatrist, with experience in both psychotherapy and the supervision of occupational therapy programs; are well qualified to write this text and reference book. It fills a real need by presenting clearly the aims of occupational therapy for psychiatric patients, especially those receiving specific treatment.

The authors state that: "The aim of this book has been to consider a formulation of the ways in which occupational therapy can be coordinated with and paralleled to other more generally accepted treatment procedures in the field of psychiatry. We have hoped to present occupational therapy as a psychotherapeutic function rather than as a maintenance function or diversional activity. In this relation we have tried to correlate the various aspects of this treatment with the causative factors of psychologic illness. Such a formulation is based on our definition of occupational therapy as that form of psychiatric or psychologic treatment which uses constructive activity as a mode of operation."

"Although the constructive activity is the feature which differentiates occupational therapy from other specialities, we have emphasized that there are three main areas which can be useful in the treatment of the patient. These consist of the relationship of the patient to the therapist, the relationship of the patient to other patients or the group, and the activity itself. Some of the areas of usefulness are as a diagnostic aid and personality evaluation, as a psychotherapeutic approach to the patient himself, and as a socioeconomic aid in evaluating skills and aptitudes as well as developing some skills and hobbies. The more specific usefulness can be found in the therapeutic expression or acting-out of the particular emotional needs of the patient."

It may be fairly stated that the authors have carried out their purpose. The points covered in the book are: definition, function and objectives of psychiatric occupational therapy, prescription, activity analysis, progress notes and the use of occupational therapy with psychiatric patients who have prolonged periods of hospitalization. Case histories are used to illustrate the authors' points.

This book will be of particular interest to those physical therapists who are working in psychiatric hospitals. The parts of the book which discuss the initial interview and methods of establishing contact with the patient do not apply to occupational therapists alone but to others working with the psychiatric patient. This book will give the physical therapists greater understanding of the aims of occupational therapy and thus through greater understanding increase the effectiveness of interdepartmental cooperation.

Diagnosis and Treatment of the Acute Phase of Poliomyelitis and its Complications. *Edited by Albert G. Bower, M.D., F.A.C.P., Clinical Professor of Medicine, University of Southern California, and at the College of Medical Evangelists, Los Angeles; Diplomate of Board of Internal Medicine; Chief of Staff, Communicable Disease Unit, Los Angeles County Hospital; Consultant to the Hollywood Presbyterian Hospital; Huntington Memorial Hospital, St. Joseph's Hospital, St. Luke's Hospital, the Glendale Sanitarium and Hospital, and the Physicians and Surgeons Hospital. Cloth; price $6.50. Pp. 257; illus. Williams & Wilkins, Baltimore, 1954.*

This splendid book is the product of Dr. Bower and his associates at the Los Angeles County Hospital where over 11,000 cases of poliomyelitis have been treated in the past seven years. Interesting additions to this experience are made by Dr. Lowman of the Los Angeles Orthopaedic Hospital and Dr. William O'Brien and associates from

Reno, Nevada. It is a reference work which presents the various aspects of diagnosis and treatment by the special members of the clinical team responsible for detailed care. It includes very particular reference to the care of respiratory involvement and complications, and beautifully describes the principles and practices which have been most effective in the care of these poliomyelitic problems. The work of the otolaryngologist, obstetrician, and research clinician receives adequate representation in addition to the work of medical and orthopedic attendants.

Clearly written and adequately illustrated, this book is well organized in terms of bibliography and index. Although not lengthy, it is one of the most convenient sources currently available for detailed information of basic physiology, technic, and teamwork care of poliomyelitis in the acute phase. The program of diagnosis and treatment here presented could well be a model to guide physicians and institutions who are called upon to treat poliomyelitis.

The Microphysical World. *By William Wilson, Ph.D., D.Sc., F.R.C., Fellow of King's College, London, and Professor Emeritus of Physics, University of London. Cloth; price $3.75. Pp. 216. Philosophical Library, New York, 1954.*

This book is devoted to giving the reader a picture of the atom as it is known today, including the structure and behavior of protons, neutrons, electrons and positrons. The contributions of the early scientists are described as our knowledge of the atom grew from the time of Dalton and his Atomic Theory. The topics discussed include the phenomena of heat, light, electro-magnetism, radioactivity and cosmic radiation. The author has included formulae and equations which are necessary in discussing such subjects and has defined the terms as simply as possible without going into mathematical details. The quantrum theory is introduced and discussed briefly.

The author does not intend this to be a textbook but only an introduction or an inducement to further study of physical science. The reviewer believes that a layman without a good background of physics and mathematics will have difficulty following the text.

There are a short bibliography and appendix, and the book is indexed.

How to Attend a Conference. *By Dorothea F. Sullivan. Paper binding. Price $1.00. 61 pp. Association Press, National Council of the YMCA's of the U. S. A. from the Leadership Library, New York, 1954.*

"So, you're going to a conference!" the author exclaims, "well, you're in good company. Each year thousands of people attend between 16,000 and 18,000 conferences, workshops and conventions." This book is written for the people who want to prepare to participate in them intelligently, responsibly, and effectively.

The author appears to know well the foibles, follies, delights, intents and benefits of conference attendance. The practical suggestions could come only from extensive experience thoughtfully considered. Everyone remotely concerned with a conference would find these suggestions useful. They are addressed primarily to the attendee and would certainly benefit him. If he followed them, not only would he return homeward wiser and happier, but hostessing a conference would become a satisfactory and rewarding, instead of harrowing, experience.

The content covers a variety of subjects — from reservations and packing, to making a speech and the job back home. There is a very interesting chapter on "Your Job as a Delegate" that would be especially helpful to any member of the American Physical Therapy Association.

Actually, this chapter includes such items as *budgeting time and energy* with such down to earth advice as: "take a long walk in the fresh air—smoke filled rooms reduce ones' oxygen intake," and, "after evening sessions, ostensibly social, are among the most valuable parts of the convention—much real business is accomplished without benefit of an agenda."

Another item on *attitudes and behavior* reminds us "your organization will make or lose friends in the city where the convention takes place, depending on the general behavior of those who attend." Still another on *the business session* asks "would you rather have American Institutions run without the consent of the governed? The whole democratic structure of the conference is embodied in how the business session runs. If you are well prepared for it you will feel your role is an important and satisfying one." There are many other pertinent ideas on note taking, the chairman's job, making a speech, discussion groups, and the leadership team.

Throughout the book there are useful references given with information on where they are secured, for example, "How to Make a Speech and Enjoy It," and "New Ways to Better Meetings."

This little pocket sized guide, almost small enough to carry in a large pocket or purse, is weighty in tips and helpful suggestions. This reviewer heartily recommends it to anyone attending a conference and most certainly to all members of the American Physical Therapy Association.

Symposium on Fatigue. Papers by the Ergonomics Research Society. *Edited by W. F. Floyd, Middlesex Hospital Medical School, London, and A. T. Welford, Psychological Laboratory, Cambridge. Cloth; price $4.00 Pp. 196; illus. John de Graff, Inc., New York. H. K. Lewis Co., London, 1954.*

This is a very interesting book dealing with the physiological and psychological effects of fatigue. It is based on a symposium held by the ergonomics research society of England in 1952. The book begins and ends with a psychological paper by Sir Frederic Bartlett and Dr. Welford which cover professor Bartlett's important contributions to the field. The 38 papers, which are found between these two, cover most of the aspects of the fatigue problem. All are interesting, though some are somewhat too short for adequate presentation. Many contain much original work such as the one on the effects of fatigue on tremor. The peripheral mechanism of fatigue is discussed by Hemingway and the reader is tempted to inquire about the relation of these data to the human sensation of fatigue.

In some of the papers the method used will not generally be accepted—such as the use of the integrated electromyogram as a measure of muscle function by Ryan. A very interesting paper is that by Schwab on motivation in fatigue measurements,

and the one by Gagne on work decrement in learning and retention of motor skills.

The mention of only a few articles in this very useful book is not meant to imply that the other papers do not contain equally first class material. The importance of problems in fatigue for the field of physical medicine is of course obvious. This book brings together recent research results from both sides of the Atlantic in a very high level publication. The book is strongly recommended to physical therapists, physiatrists, and physiologists alike.

Parkinsonism and Its Treatment: The Practitioner's Pocket Book. *Edited by Lewis J. Doshay, M.D., Ph.D. Contributors include H. Houston Merrit, M.D., Columbia; H. W. Magoun, Ph.D., University of California; D. Denny Brown, M.D., Harvard; Aldofor Zier, M.D., Columbia; and William Benham Snow, M.D., Columbia. Cloth; price $3.00. Pp. 152; illus. J. P. Lippincott, Philadelphia, 1954.*

Not only because of the prevalence, but also because of the advances made in the treatment of this disorder, is a monograph on the subject of parkinsonism needed by the practicing physician and medical student. As a major disabling condition, parkinsonism has been rated third. Much may be done by the physician in his management of the person so afflicted.

The editor has engaged the most authoritative workers to contribute information on the anatomy, etiology, pathology and symptomatology of parkinsonism. An excellent chapter on drugs describes the pharmacology and gives details on the administration of each preparation, both old and new. In the chapter on physical therapy, various technics and procedures of rehabilitation are discussed. The shortest chapter is that on psychotherapy, which deals with obvious concepts. The concluding chapter summarizes the surgical procedures which have been tried by the neurosurgeon. These have not been too encouraging.

The book is well written and thorough. The few illustrations are well chosen. A satisfactory bibliography follows each chapter.

The book may be recommended for reference to all those who work in physical medicine.

Modern Occupational Medicine. *Edited by A. J. Fleming, M.Sc., M.D., Assistant Medical Director of E. I. du Pont de Nemours & Co; and C. A. D'Alonzo, M.D., F.A.C.P., Special Assistant Medical Division, of E. I. du Pont de Nemours & Co. Associate Editor, J. A. Zapp, Ph. D., Director, Haskell Laboratory for Toxicology and Industrial Medicine at E. I. du Pont de Nemours & Co. Cloth; price $10.00. Pp. 414; illus. 44. Lea & Febiger, Philadelphia, 1954.*

This book presents plans for establishing medical departments in industry, methods for preventing industrial accidents, and the diagnosis and treatment of many industrial injuries.

There are 20 authors who have contributed to this book, 16 of whom have worked in the medical departments of E. I. du Pont de Nemours & Co., and the other four have been associated with the medical division in their own fields of work. These authors represent from 5 to 39 years of experience in the du Pont company.

The book is divided into seven sections as follows: 1) Organization, 2) Industrial Preventive Medicine, 3) The Physical Environment and Occupational Health, 4) Services Allied to Occupational Medicine, 5) Psychiatry, 6) Toxicology, 7) Acute Poisoning. These sections give concise and well presented information that will be readily useful to physicians, executives, safety engineers and chemists in industry. There are 44 illustrations of medical history records, physical examination charts and physiological charts that should be most helpful in studying industrial health and accident rates.

Industrial concerns who are building new plants will find this book of value when establishing their medical departments, in evaluating the chances of industrial accidents, and in the prevention of such accidents. This book also could be used as a criterion for medical departments all ready established in industry.

The reviews here published have been prepared by competent authorities and do not represent the opinions of the American Physical Therapy Association.

Our Book Reviewers for May

Grace Louise Barnhart, graduate of the University of Wisconsin, an inactive member of the American Physical Therapy Association and a resident of Greensburg, Pennsylvania.

H. D. Bouman, M.D., Professor of Physical Medicine, University of Wisconsin Medical School, Madison; Editor of *American Journal of Physical Medicine.*

Josephine Buchanan, M.D., Chief of the Physical Medicine Service, Gallinger Hospital; Chief, Rehabilitation Division of Chronic Diseases and Tuberculosis, United States Public Health Service, Washington, D. C.

Dorothy M. Dean, Chief Physical Therapist, Winnetka Rehabilitation Center, Winnetka, Illinois.

Joan P. Ebert, former Research Associate on the A.P.I. Research Project 44 at the National Bureau of Standards, Washington, D. C.

Carl D. Martz, M.D., Assistant Professor, Orthopedic Surgery, Indiana University Medical Center, Indianapolis.

Capt. Marie Mendler, WMSC, Physical Therapy Section, Walter Reed Army Hospital, Washington, D. C.

William J. Shriber, M.D., Director, Physical Medicine Department, Beth Israel Hospital, Boston; Assistant in Medicine, Harvard Medical School, Boston.

Clare S. Spackman, Associate Professor of Occupational Therapy, University of Pennsylvania, School of Auxiliary Medical Services; Philadelphia School of Occupational Therapy, Philadelphia.

Vaccine Validated

(Continued from page 249)

In August of 1954, three Provinces in Canada were included in the poliomyelitis vaccine field trial. The American Physical Therapy Association in cooperation with the Canadian Physiotherapy Association assisted in arranging for three physical therapists to come to the States for the same type of orientation which had been given physical therapists in this country.

During the 1954 field studies, muscle tests were performed by sixty-six physical therapists in forty-four states and three Canadian Provinces as part of the follow-up phase of the poliomyelitis vaccine field trial under the direction of the poliomyelitis evaluation center in Ann Arbor and carried out by state and local health departments.

The various field studies during the past four years have meant a great deal to the seventy-nine physical therapists who have been closely involved with them. All of these physical therapists are affiliated with facilities concerned with physical therapy education and service—state services for Crippled Children, schools of physical therapy, hospitals, clinics, and treatment centers. At the same time, they represent a cross section of the North American Continent for they are located in forty-two states, the District of Columbia, the Canal Zone and three Provinces in Canada.

The participation of physical therapists was made possible through grants from the National Foundation for Infantile Paralysis to the American Physical Therapy Association because, as a professional organization supported by its members with channels to available services and personnel, it could be called upon to move into action quickly and effectively.

Classified WANT-ADS

PHYSICAL THERAPIST for 265-bed teaching hospital, located on Chicago's near-north side. Starting salary good. Merit increases. Excellent employee benefits, including 4 weeks' vacation; 12 days sick leave; laundry furnished; and 50% tuition reduction on courses at Northwestern University. PASSAVANT MEMORIAL HOSPITAL, 303 E. Superior, Chicago 11, Illinois.

IOWA METHODIST HOSPITAL, Des Moines, Iowa, needs qualified physical therapist. Hospital has 400 beds, including 100-bed Raymond Blank Memorial for Children. Postpolio cases and in- and outpatient work. Competent professional staff and assistants, excellent working relationships. Apply: Bruce D. Root, Personnel, Director.

WANTED IMMEDIATELY: QUALIFIED FEMALE physical therapist. General hospital clinic with outpatient service. No cerebral palsy or polio cases; 5-day, 40-hr. week. Holiday, sick leave, and vacation privileges. Quarters optional, laundry furnished. Good beginning salary, annual increases. Write to: Miss Mary Mason, Physical Therapy Dept., The Johns Hopkins Hospital, 601 N. Broadway, Baltimore 5, Maryland.

Physical Therapist for staff POSITION NOW OPEN at Rest Haven, Inc., convalescent and rehabilitation hospital. Liberal salary, five-day, thirty-seven and one-half hour week, three weeks' vacation, paid sick leave and optional maintenance. For information, contact: Mrs. Eunice Howard, 1409 S. California Ave., Chicago 8, Ill.

WANTED: PHYSICAL THERAPIST to take charge of new department completely equipped with latest hydrotherapy, electrotherapy and exercise rehabilitation equipment. Hospital is located between Chicago and Milwaukee. Ideal working conditions and excellent salary. Write to Sr. Regine, Admin., St. Therese's Hospital, Waukegan, Illinois.

POSITION: Physical therapist for new cerebral palsy center. If person has had sufficient experience, directorship will be open also. Apply to Mrs. Thomas Owen, Amarillo Cerebral Palsy Center, Amarillo, Texas.

EXPERIENCED PHYSICAL THERAPIST wanted for ambulatory clinic for adults, chiefly middle-aged; full time, beginning about July 1st. Salary open. Write Mrs. Rosamond Yost, Sidney Hillman Health Centre of Chicago, 333 S. Ashland Blvd., Chicago 7, Ill.

QUALIFIED PHYSICAL THERAPIST NEEDED for staff position in school for blind children. Salary open. Usual school vacations, including three months in the summer. Maintenance optional. Write Director, Perkins Institution for the Blind, 175 North Beacon Street, Watertown 72, Massachusetts.

WANTED IMMEDIATELY: QUALIFIED PHYSICAL THERAPIST for general physical medicine, rehabilitation in outpatient center. Five-day week, 3 weeks' paid vacation, 6 holidays, sick leave, social security. Salary dependent upon experience. Write: Gloria J. Fitzpatrick, RPT, Director, Ingham County Curative Workshop, 615 North Capitol, Lansing, Michigan.

QUALIFIED PHYSICAL THERAPIST needed for staff position in children's orthopedic hospital. State registration required. Good salary, maintenance optional; 15 days' vacation; 15 days' sick leave, 40-hour week. Contact Dr. W. L. Minear, Chief Surgeon, Carrie Tingley Hospital for Crippled Children, Truth or Consequences, New Mexico.

WANTED: QUALIFIED PHYSICAL THERAPIST for treating orthopedic patients, work divided between orthopedic clinic and hospital. Polio center for southwest Okla., salary dependent on experience, 40-hour week. Contact: Dr. C. S. Graybill, 1202 Arlington, Lawton, Oklahoma.

Classified WANT-ADS

FULL TIME POSITION as physical therapist is open at a new and modern county hospital. Forty-hr wk., vac., pension plan, 30-da sk. lv., 7 pd holidays. No work Sat. or Sun. Under supervision of Diplomate. Apply Berks Heim, Box 1495, Reading, Pa.

STAFF POSITION for qualified physical therapist at California Rehabilitation Center (formerly Kabat-Kaiser Institute). Good starting salary with periodic increments; 40-hr. week, 12 days' sick leave, health plan and other benefits. On-the-job training in technics of neuromuscular facilitation. For further information write Thomas Humphrey, Chief Physical Therapist, California Rehabilitation Center, 1815 Ocean Front, Santa Monica, Calif.

WANTED: PHYSICAL THERAPIST; 400-bed general hospital. All types of patients. Good salary; 40-hour week; 3 weeks' vacation; 2 weeks' sick leave. Contact: Dr. Dominic A. Donio, St. Luke's Hospital, Ostrum Street, Bethlehem, Pennsylvania.

TWO QUALIFIED physical therapists for large cerebral palsy outpatient center with total program; 5-day, 35-hour week. Uniforms and laundry provided. Salary excellent; vacations, sick leave, holidays. Write Coordinator, United Cerebral Palsy Assn., 380 Washington Avenue, Roosevelt, N. Y.

WORK IN SOUTHERN CALIFORNIA. Physical therapists needed at Rancho Los Amigos Respiratory Center for Poliomyelitis, West Coast center for post polio care, and general medical and rehabilitative activities at this hospital. New building and most modern equipment available. All aspects of rehabilitation including pool therapy for polio patients. Inservice training program under the direction of an instructor of physical therapy. Permanent employment with Civil Service rights including paid vacation, sick benefits, holidays, and retirement benefits. Write: Personnel Director, Rancho Los Amigos, Hondo, California.

WANTED: A SUPERVISOR of physical therapy, qualified to teach nurses and students, for growing department in a community rehabilitation center serving a population of better than 450,000. Department completely and newly equipped. Staff, team oriented—includes speech therapists, O.T.'s, P.T.'s, Counselor-psychologist, and physiatrist (Director). Industrial community. Salary commensurate with experience and ability with periodic increases. Write: Keith C. Keeler, M.D., Director, The Rehabilitation Center of Summit County, 326 Locust Street, Akron 2, Ohio.

RESPIRATORY CENTER needs experienced physical therapist in supervisory capacity for a 12-bed rehabilitation unit for convalescent poliomyelitis patients, located on the 12th floor of the new Research & Education Hospital of the University of Illinois. Emphasis on pulmonary rehabilitation and use of assistive devices. Complete facilities available in Department of Physical Medicine & Rehabilitation. Six paid holidays, two weeks' paid vacation, sick leave cumulative, 5-day work week. Good salary for mature person able to take responsibility. Write: Dr. George A. Saxton, Jr., Director, Respiratory Center, 840 South Wood Street, Chicago, Illinois.

PHYSICAL THERAPIST for 400-bed general hospital. New, fully equipped department for treatment of all types of patients, including outpatients. Liberal personnel policies. Write to: William D. Barclay, Madison General Hospital, Madison, Wisconsin.

PHYSICAL THERAPIST for newly organized well equipped department in a 285-bed hospital. Liberal personnel policies. Salary open. Apply Administrator, St. Francis Hospital, 1860 Queen City Avenue, Cincinnati 14, Ohio.

WANTED: TWO FEMALE STAFF physical therapists for well equipped department serving an 800-bed hospital with a rehabilitation ward. The physical therapists rotate through two hospitals, an affiliated rehabilitation center, and one mobile unit for arthritic patients. Forty-hour week, four weeks' vacation, sick leave. Dr. Thomas Hines, Director. Apply to E. Nyman, Supervisor, Physical Therapy, Grace New Haven Medical Center, New Haven, Conn.

IMMEDIATE PLACEMENT for qualified therapists in 140-bed rehabilitation center of all age levels; treating postacute and convalescent polio; orthopedic, neuromuscular and musculoskeletal disorders. Good opportunity for initiative. Congenial working conditions with cooperative staff. Excellent facilities; therapeutic indoor and outdoor pools. P.T. and O.T. Clinical training center gives opportunity for teaching and supervision to those interested. Also, for Assistant Chief to help plan and build program for Graduate School Department medically supervised by American Board Physiatrist. Five-day week with paid vacation. Laundry furnished. Write: Medical Director, Dr. Odon F. von Werssowetz, Warm Springs Foundation, Gonzales, Texas.

Classified WANT-ADS

RATES

The rate per insertion is 75c per line. Typewrite your advertisement carefully and count 50 characters and spaces per line.

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